Gleanings in Bee Culture

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EDITORIALS

A Big Supply Year

THE year 1914 will reach the high-water mark in the demand for bee-supplies. So far as we know, all the bee-supply manufacturers in the country have had a bigger demand for goods than in all their history. This looks as if the bee business were looking up. The great season of 1913, with a promise of another good one, has boomed the supply business away beyond normal.

Unusual Field-Day Meeting for Iowa Beekeepers

THE beekeepers of Iowa are to have an unusual opportunity to become acquainted with Frank Coverdale, of Delmar, Iowa, who has a national reputation as an authority on the growing of sweet clover. In the brief mention of this meeting in GLEANINGS under Convention Notices the date is given as July 7.

Beekeepers and farmers in general are going to know very much more about sweet clover ten years hence than they know now. Mr. Coverdale is one of the pioneers in finding new values of this old plant.

A Greater Demand for Power-driven Extractors

THE large honey-producers of the country are beginning to see that they cannot afford to take their honey with hand-driven extractors. One by one, the large producers are adopting the big outfits. They not only extract honey more cheaply, but, what is of considerable importance, they extract the combs cleaner. And here is still one more fact: The bigger the extractor, the less out of balance the reel will be on account of uneven weight of combs.

While the first cost of the machines is considerably more, they are not more expensive than a lot of little ones scattered around at all the outyards. In this day and age of the world it pays to draw the combs to one central extracting-plant, and cart them back again. For this purpose a small motor truck is far more satisfactory than a heavy machine.

Slightly Exaggerated Again

WE observe that Mr. H. G. Quirin, the queen-breeder at Bellevue, Ohio, according to the newspapers, will send out about six million queens this coming season from his place. Our subscriber who directed our attention to this suggests that our project at Apalachicola is a dismal failure in comparison.

We only mention this as another sample of newspaper exaggeration. The probabilities are that Mr. Quirin told the correspondent that he would probably raise somewhere around six thousand queens, and this might be possible. If Mr. Quirin should raise six million queens in a year, and he does his work all alone, he would be some hustler. In fact, there wouldn't be any chance for the rest of us to rear queens.

An Enormous Demand for Early Queens in 1914

NEVER before in all the history of beedom was there such a demand for early queens. The bee-martin seriously handicapped the queen-rearing operations in Florida that were to supply us with early queens. We wired queen-breeders all over the country for queens; but every one of them was swamped with orders of his own. In the mean time complaints began to come in from dissatisfied customers who sent their money to some of these queen-breeders, and who had received nothing in return other than an acknowledgment of the receipt of the orders. There was a big demand for early queens last spring, but nothing as compared with this year.

Mr. A. B. Marchant, who was to supply us with queens, was unable to get them to us as fast as required. The main reason for this was the bee-martin that would nip

off his virgins as soon as they took their wedding-flight. One would think he could have cleaned them out with a shotgun; but they were too numerous.

The Prospects of the Season; Prices, etc.

CLOVER is just opening up in this locality, June 10; and while there does not seem to be as much of it this year as last, there apparently will be a fair crop. Indications all over the clover area of the United States seem to show it will be good; but for all that, there may be a short crop. The excessive hot wave over the country may blight the crop yet. It is too early yet to make any positive predictions.

In the mean time there is some uneasiness over the matter of prices. There is no denying the fact that there was considerable honey left over from last season. Many producers held out for better prices, and in this they probably made a mistake. If there should be a good crop of clover again, and a fair crop of alfalfa, prices will be a little easier than last year.

We are requesting our subscribers to send postal-card reports from their respective localities. Do not write more than one or two sentences. If clover is scarce, say so; if the drouth and hot weather have been excessive, indicate that also.

Later.—Hot weather is drying up the clover, and bees are not doing much. It begins to look bad for clover.

A Handy Scythe for Beeyard Work

IT IS not often that we refer to articles advertised in these columns; and when we do, it is *not* because we have been paid to do it. Our editorial space, and space in Special Notices, is not for sale at any price; but when we do mention favorably any article that has been advertised with us it is because it has unusual merit. A case in point is the imported scythe blades advertised by the Marugg Co., Department C, Tracy City, Tenn. The blade is very light and thin—almost as thin as a Gillette razor-blade, but it has a very rigid back. It is very wide nearest the handle, and tapers to a sharp point. The snath that goes with these blades is very light also. The tool as a whole is the handiest thing to mow around a hive with of any thing we have ever tried; and it is away ahead of a common scythe except for mowing brush. After you get the "hang" of it you will like it and wonder why we Americans do not use it more generally. This same tool is used all over Europe.

We placed one in the hands of an old countryman. His eyes twinkled at once as he said, "Dot's de tool for me." And he knows how to sharpen it too.

The company furnishes a little anvil and hammer to hammer the blade, and then it has an edge given to it with a special whetstone.

Safe Arrival of the two Last Carloads of Bees from Florida

THE last two carloads in charge of our two men, Mr. J. E. Marchant and J. P. Anthony, arrived at Medina June 2. In one of the cars we put 13,000 lbs. of tupelo honey that we extracted, and some wax that we had bought, billing the cars as "bees, honey, and wax." The other car had bees only. Mr. Marchant had planned to bring back 800 colonies and 500 three-frame nuclei; but he brought back 650 colonies, and nearly the full number of nuclei. The mosquito hawks (dragon-flies or devil's darning-needles, as some call them) are very destructive to bees and queens in the South at certain times of the year. Said Mr. Marchant, "These mosquito hawks did us nearly a thousand dollars of damage. They were so bad, indeed, that we were compelled to shut the bees in the hives in spite of the extremely hot weather. This necessarily caused some bees to worry and die; but the loss in this way was nothing in comparison with letting the bees fly, only to be killed by the thousands by these fell destroyers."

A northern man can scarcely realize how destructive these agents are. They come on at certain seasons in great swarms in different parts of Florida and in different months. Sometimes they come early and sometimes late. Said Mr. O. O. Poppleton, "It seems almost as though the bees learn to stay in their hives, as they easily recognize their natural enemies in this Southland."

Our recent trip through Florida was to find some place where mosquito hawks do not get in their destructive work, but we found no such place. The result of closing in our bees, together with the fearful work of the mosquito hawks, cut our shipment down nearly 150 colonies—at least we were that number short of our original estimate.

Our Mr. Marchant who went down and came back with the bees says this season has been one of the worst that was ever known. The cold backward weather delayed the blooming of the tupelos; and when they did come out the weather was so extremely hot and dry that they were in bloom only

about half as long as they usually are. But in spite of this he increased one carload of bees up to 650 colonies and 460 three-frame nuclei, took 13,000 lbs. of honey, and drew out nearly 6000 frames of foundation. Another year he thinks he can do much better, as conditions can hardly be worse.

Now, then, was the experiment a success? Even if we take into consideration that our increase and honey crop fell short, our scheme was not a failure by any means. The project will pay out, and leave us something to the good. In addition we acquired some valuable experience, all of which has been or will be given in these columns for the benefit of the public at large. When viewed from this standpoint our project was a big success. In all the history of beedom we do not believe that any one ever before moved bees south, and made a three-and-half-to-one increase. It must not be forgotten that, in spite of the unfavorable weather, we drew out nearly 6000 frames of foundation into fine nice combs. We have always been short on combs; and we now have the nicest set of wired combs we ever had. If we leave out of the account entirely the publicity item, which we feel sure means a big boost to GLEANINGS, we are still on the good side of our ledger account.

As clover is very promising, and basswood looks well, our Florida project will pay out bigger yet if we get any kind of crop. We now have eleven yards of bees. The outyards run for honey will contain about 60 colonies, or what is the equivalent of two truckloads. Our light gasoline-truck is able to carry 30 colonies at a time. With this truck we can deposit enough bees at the outyard to make three or four yards in a day.

By the way, the big team and the wagon can haul only 30 colonies. It takes the team a good part of a whole forenoon to go to an outyard and back; but the gasoline-truck will do the same work in an hour; and, what is of considerable importance, it does not make any difference if there are a few bees leaking out of the hives.

There will be some further illustrations showing the whole project.

A Big Field-Day Meet at Medina

PREPARATIONS are under way for a big field day at Medina, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association. At the last convention, held in Athens, it was decided to have a field day at Medina, on a date to be agreed on later. Many have desired to see the A. I. Root Co.'s manufacturing plant, their queen-rearing operations, and the various methods for taking honey with a power extractor, a modern capping-melter and separator; and a few have said they desired to see A. I. Root himself, who has agreed to be at home on that day. In this connection, the President, Prof. W. A. Matheny, writes:

> I fancy that I can hear all our beekeepers say they are anxious to see your father, A. I. Root. I trust that his health will be such that he will be able to give us a short talk. I confess to you that to see him is my motive in working up this meeting. Of course, I am anxious to go over your plant again, and I am anxious to have our beekeepers see what a wonderful place you have; but I know that every one will enjoy most the privilege of hearing A. I. Root.
>
> Athens, O., May 29. W. A. MATHENY.

It is proper for us to state that, while we did not invite the State Association to hold its field day at Medina, the organization is more than welcome, as well as every one else who would like to be here on that day, whether they live in Ohio or not. Estimates have been made that there will be 500 people here, including a few prominent beekeepers from all over the country. It is quite possible that we can arrange to have the veteran Dr. C. C. Miller, of Marengo, Ill., and perhaps G. M. Doolittle. Mr. Doolittle is a good speaker as well as a writer. It is worth going a hundred miles to hear either of them talk.

The date is set in July so that beekeepers will not be tied up at home on account of their honey-flow.

As hotel accommodations are not extensive here, we shall probably have to arrange for one of our warehouse rooms where we can sleep the men on cot beds and straw. The women and children can probably be accommodated in the homes of the town.

We have never felt that it was proper for *us* to invite any beekeepers' organization to meet at Medina, on account of the indirect advertising it might give to our company; but when an organization takes the initiative, as the Ohio State Association has done, we are glad to co-operate in making their field-day a success. In this connection, every one who expects to come here will send a card to Prof. Matheny in order that he and ourselves may be able to make proper arrangements to accommodate the people.

Many will arrive on the afternoon of July 9; and while there will be some field-day operations on that day, the principal part of them will doubtless occur on the day following. We do not know what the program will be, but we suppose there will be addresses on the evening of the 9th as well as during the day of the 10th, accompanied by demonstrations.

Those near by can bring their lunches, while others will be served, probably, at 35 cents a meal at the hotels, restaurants, and by the ladies of some of the churches.

Some Wonderful Bee Country in the Cold Northwest

MR. G. C. RAHN, box 293, Haileybury, Ontario, Canada, called to see us a few days ago, and told us something about the possibilities of keeping bees in his part of Canada. As an evidence of what can be done by a man who thoroughly understands his business, he ordered from the southern part of the United States a number of pound packages of bees with queens. By careful stimulative feeding he built each of these pounds of bees into colonies so that they averaged that season from 70 to 75 lbs. of clover comb honey in Danzenbaker sections. He also has produced as high as 300 lbs. of comb honey from one colony, wintered in his cellar, spring count. He had other yields almost as good from other colonies he had wintered. It takes a good beekeeper, of course, to get yields like these, even in the best of localities. But no beekeeper, no matter how expert, could accomplish these results unless he were in a good locality.

There are large areas in his country where bees can be kept very profitably, especially after the land has been cleared. Willow-herb, raspberry, and clover follow on in quick succession. The cattle from the lower land, in their droppings distribute clover all over this newly cleared land. The timber is cleared off, leaving brush and stumps, which are burned down clean—root, branch, and stumps. The land will then be found in fine condition for cultivation, and will grow almost any thing that thrives in the Northern States—especially the clovers, which are very abundant.

As yet, beekeeping in his part of the country has not made much of a stir; but there are splendid opportunities for the practical, energetic beekeeper who learns thoroughly the locality; but probably only a few could make a success in that cold country. Bees have to be confined in cellars for 20 to 22 weeks, and during a part of the time the temperature has to be kept up by artificial heat. The temperature goes down to as low as 50 degrees below zero in winter, and in the summer it goes as high as 108. It is a country of extremes. The cold winter weather will kill off the bees by the wholesale unless one thoroughly understands the art of wintering, said Mr. Rahn. An ordinary cellar will not do. Some have built expensive concrete cellars; but the walls are too cold and damp. Mr. Rahn has been successful in wintering his bees in a sort of log-house cellar. The walls are lined with logs, and the top is covered with logs, and then the whole is buried deep. The logs absorb the moisture, so that the bees winter very much better than in stone or concrete cellars. Taking it all in all, the problem of wintering in that country is a serious one, and only a few succeed.

Mr. Rahn is particularly interested in getting bees from Florida in May because he says he knows what he can do if he can get the bees early enough. If bees can be brought from the South in pound packages cheaply enough he can build them up into colonies in short order.

In this connection he indorses our plan of making increase in cellars. We told him that quite a number of expert beekeepers were inclined to poke fun at it as too visionary and too uncertain in results. Said he, "Mr. Root, the plan is all right. I have repeatedly put three-frame colonies in the cellar, and brought them out ten-frame in the spring, notwithstanding the temperature outside was far below zero practically all winter. I use and recommend for this purpose cakes of candy the same as you use and recommend."

Another thing he has learned is that, when the colonies are too strong for their winter stores, they are inclined to have dysentery; but he says a colony of moderate strength, with pure granulated-sugar candy, will have no dysentery, and will probably be stronger than when it went into winter quarters.

In speaking of the different races of bees, he was rather fond of the Caucasians, because they breed up so well and stand cold. They do not swarm any more for him than the Italians. Our friend J. J. Wilder, of Cordele, Ga., will take note as it confirms his experience with them in the Southland. With us they swarm as badly as the Carniolans.

We said to Mr. Rahn that doubtless many would like to settle in that country, and asked what was the procedure to get land. The Ontario Government is offering favorable inducements to settlers. The land is sold at fifty cents per acre in 160-acre plots; and when a patent is secured, fifty cents per acre more is required.

Our Canadian readers will be interested, and possibly some on this side of the line; but remember the winters are bitter and cold; and if you are going to keep bees it is important to know whether you or your families can stand such cold, even if you feel that you can winter the bees.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

J. M. BUCHANAN, in your valuable list, p. 432, you give dandelion as a yielder of nectar. Here it yields much pollen as well. Your alsike is "almost equal to white clover." I think it's better in the North.

MY women folk are daffy on grapefruit, taking it regularly every morning. But they object to taking the juice through a straw, as given by A. I. Root, p. 442, if that means "without any bitter," for they specially relish the bitter. And they don't want any sugar with it either.

J. L. BYER, the name you cannot recall, p. 338, is G. W. Demaree, and right you are to commend his plan for prevention of swarming. You speak a little as if it is only to be used "if there are no signs of swarming at the time of the operation." If I am not greatly mistaken it works all right after cells are started, only you must cut them out, and the plan may even be used after swarming occurs.

YOU'RE right, Louis H. Scholl, p. 367, in commending "hives in pairs." If I am correct, that plan originated "in this locality," and you cannot urge too strongly that putting hives in pairs is practically spacing them further apart; in other words, by putting them in pairs you can exactly double the number of colonies on the same ground without at all increasing the danger of going to the wrong hive. [This scheme is all right.—ED.]

WESLEY FOSTER, you say, p. 327, that with a rapid uninterrupted flow a one-inch top-starter and ⅝ bottom-starter works well. Won't that middle space contain much drone comb? and do you think that makes a nice finish? Besides, if you don't use excluders the queen will come up to lay in that drone comb; and if you do use excluders the bees will delay sealing, waiting for the queen to lay in it. I'm much interested in your contemplated experiments.

MAY 29 finds colonies strong in number. Dandelion is just closing a busy career, and white clover is beginning to bloom. It was never more plentiful, but will it "honey," as the Germans say? The ground is so full of water that clover can hardly dry up for some time, if it yields nectar at all. Will the knowledge that ten supers apiece are ready for them spur the bees to effort, or will it utterly discourage them? [This is a year of promise all over the country for clover districts, so far as we have been able to learn. The fact that the bee-supply manufacturers are all busy is significant.—ED.]

D. E. LHOMMEDIEU'S plan for draining cappings seems good. Save the cappings in a vessel with solid bottom without giving them a chance to drain—all the better if considerable honey is with them—then take a stamper perhaps 2½ inches in diameter, which is cut off square at the lower end; stamp the cappings into fine pieces, and the honey will then drain readily from them when given an opportunity. The draining may be hastened by putting the cappings through a honey-extractor.

YOU say you don't catch on to my question, Mr. Editor, yet think the answer easy, p. 365. Glad if it puzzles you, if I can only get your attention to the sort of puzzles you're all the time handing out to your readers. If you had ventured an answer at all, like enough you would have said that if Smith gets 50 pounds of honey per colony, and Jones gets 60 pounds, then Jones has 20 per cent greater success than Smith, which may be quite right and may be very wrong, because of the loose statement in the question. If the two men produce the same kind of honey, 20 per cent is the right answer. But if Smith produces extracted and Jones comb, then 20 per cent is too small an answer; and if Smith produces comb and Jones extracted, then Smith is the more successful, according to general experience. I hope you've had so much guessing that you'll stop making your readers guess in every number of GLEANINGS when you let some contributor mention so many pounds of honey without specifying comb or extracted. And please, please, when mentioning foul brood, don't leave any uncertainty whether it's American or European. [When a correspondent does not tell whether he is referring to European or American foul brood or comb or extracted honey, we can not very well add the qualifying adjectives without danger of making him say what is possibly not true. It would be considerable trouble to write to every one, especially those who write only once a year or once in five years, to find out the specific thing referred to. About all we can do is to request our regular correspondents to say whether they mean comb or extracted honey or American or European foul brood, and we are making this request at this time. When, however, a correspondent describes his extracting outfit, or mentions it incidentally, it is hardly necessary for him to cumber up the article by adding the word "extracted" every time he refers to his crop.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

I do not remember that we have ever had a chemical analysis of pollen. If we have had, we should know better what to substitute for it where it is lacking. I am coming more and more to appreciate the value of pollen and its stimulating effect upon brood-rearing.

* * *

Mr. J. L. Byer, on page 248, says he is using hives made or painted by his grandfather thirty-two years ago still in fairly good condition. I think I can go you one better. I have double-walled hives in fairly good condition that I made and painted 44 years ago. My! how time flies!

* * *

"Bees that cluster on the outside of the hive are wasting their time," says Wesley Foster, page 614, Oct. 1, 1913. I don't feel sure about that. When honey is coming in freely a large amount of evaporating must be done, and I see no good reason why bees can not do this as well on the outside of the hive as on the inside—perhaps better.

* * *

Mr. Byer, page 246, April 1, thinks that there is more danger from disease among bees in the city than in the country. I believe he is right. You may find them in an out-building or in an attic, or, as I did on one occasion, in the upper story of a barn. There is also greater danger of contracting disease from bottles of honey that have been emptied and thrown on a refuse-heap or from broken barrels, or packages of honey left where bees can get at them.

* * *

A long time ago some one looked up at night and saw the stars, and said, "The heavens declare the glory of God, and the firmament showeth his handiwork." And he was right, for they do. But it is just as true to-day that the hills and valleys, forests and fields, the birds, the bees, the flowers speak of his wisdom, goodness, and love. And it is just grand, these warm spring days, to go out in the midst of such surroundings and work with the bees. Let us not forget those who are confined to the workshop or factory, and thus rarely hear the song of birds or the hum of bees.

* * *

SPRING DWINDLING IN VERMONT AND ITS CAUSE.

Bees were considered in good condition in western Vermont on April 1; but the 15th of May will find many yards in rather bad shape, with some dead colonies, and many greatly reduced in number—in fact, we have had more or less spring dwindling.

What is the cause? Largely, weather conditions, I believe. The weather station near by reports the coldest April in over thirty years—some nine degrees lower during April than any other April since a record has been kept in Burlington, Vt., thirty-one years. What was worse than the average low temperature was the large number of severe freezes we have had. Every week the temperature fell so low as to kill most of the unsealed brood except in the strongest colonies. On May 1st the mercury stood at 26 degrees, and on the 13th the mountains east and west were white with snow that had fallen during the night.

Another difficulty was the shortage of pollen. The cold killed many flowers, and the weather was so cold that little could be gathered from such as withstood the frost. Only strong colonies could keep up under such conditions. The old bees died off rapidly, and no brood-rearing could be carried on to replace them with young bees.

* * *

ENOUGH TO MAKE ONE MAD; MELTING HONEY AND PLUGGING TIN CANS.

"Be ye angry and sin not" is pretty good advice; for if there is any thing that makes a man act like a fool it is getting angry or getting drunk; but it is not always easy to control one's self. A while ago I was melting up some honey in five-gallon cans, and out of twenty or thirty cans no less than ten had holes in them—mostly nail-holes, I think. We melt in warm water; and if we set a can in that has a hole in the side, when the honey melts it will run out and the water run in, just as a jug of water turned bottom up will let the water out and air in—first one and then the other. It is not conducive to good nature to discover, when you come to empty the honey from your can, that it is half water, as we sometimes do. We try to find the holes before we put them in the water, but do not always succeed. But if we find them, what then? Why, just solder up the holes. Yes; but the moment the hot iron touches the can near the hole it will melt the honey before it melts the solder, and out it comes, making it impossible to make the solder stick. My! but wasn't it provoking? But it occurred to me at last that the holes could be stuffed with light cotton cloth with the point of an awl or dull knife. I tried it, and it was an entire success; and I note it down for the benefit of others.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Several requests are still on my desk for me to give my methods of swarm control, together with my spring management, with the divisible hives I use; but so far it has been impossible for me to write this up as fully as desired by these enquirers. This I regret very much, as I feel that, since we have been able to keep down swarming to a minimum in such a large number of apiaries, and for so many years, this information may help others to hold the bees in check to some extent at least. This year it happened that we had continued rains and bad roads to such an extent that we could not visit the apiaries for weeks, and some of them we could not reach at all during the entire spring months. The spring was exceptionally favorable for swarming; and as a consequence of our inability to make the necessary manipulations we lost many swarms. In a few yards nearer home, and in those near good roads, that could be reached at the proper time, the bees did not give us any trouble.

I am taking this opportunity to explain why this question has not already received my attention.

* * *

"COMB-HONEY SANDWICHES."

Little slabs of comb honey wrapped in clean paraffine paper with a nice colored band of paper around all, to hold it together, as the sandwiches are put up that are handed us at the railroad-station restaurant now, ought to prove a splendid way of disposing of a large lot of comb honey. It would be cheaper to produce the comb honey in shallow frames, cut it out into suitable pieces, wrap it, and hand it over to a customer. This is intended for the retail trade, of course. For shipping to market these "honey sandwiches" need only to be placed in cardboard cartons, with so many to a case, and the cases crated together for shipment. Pound packages of comb honey of this kind can be produced much cheaper than pound sections; and although they may not take the place of sections where section honey is especially demanded, yet I do feel that they would find a good demand with those people who care more for the honey they get for their money than for the appearance they pay for in the section honey.

* * *

A VALUABLE ARGUMENT.

Some time ago I outlined an experiment which could be easily made to determine which would be the cheaper to use, syrup or honey. The test is made by placing on the table two equal-sized tumblers and filling one with honey, the other with syrup. Enough of either is to be spread on the bread with which it is eaten, to "give one a good taste of either the syrup or the honey." Close observation will reveal the fact that it takes a good deal more of the cheaper-priced syrups to "give one a good taste" than if honey is used. It will be found that the use of honey at a higher price than the cheap syrups will go further, and, consequently, be the cheaper in the end. And not to be forgotten is the fact that the honey is by far the more healthful. Its constant use will not give any evil effects like the many glucose and other corn syrups on the market. We have recently used a small pail of the lightest-colored syrup now on the market; and while it "tasted" quite good for a few meals, for a change, we do not care for it any more. We simply tired of it from the effect that the glucose and corn syrups have on our systems.

* * *

OUR FLOOD LOSSES AND THE PROSPECTS.

A large number of our friends have sent me encouraging letters since we experienced the heavy flood losses in the Brazos River Valley last December. These letters are certainly appreciated. We feel more encouraged to go on with that which we still have, and we feel the loss much less.

The weather the past winter and this spring has been one continuous time of excessive rainfalls. Since October of last year there has been in this neighborhood 29.74 inches of rainfall, and it has rained heavily all day today. This is a very exceptional occurrence for this part of the State. Other parts of Texas have fared still worse, while a few localities did not suffer from an excessively wet season. Indications are that there will be still more rain for some time, and we can not tell when the end will be.

Roads are almost impassable, and work in the outapiaries will be impossible for some time. Our work is being delayed considerably. But the prospects for a good honey crop in this part of the State are excellent so far, although it may prove to be too wet a season for best results. We can never tell, until we have made our crop, what it will be, as some seasons are too dry and others too wet.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March and April have paid in full all of the days borrowed from May. The closing days of the month were of a variety that would have fitted the season better in the early spring. Fog, fog, fog, has been the complaint of the beekeeper, and justly so, for it has done no less than cut in halves the crop of sage honey.

* * *

"BEARING" THE MARKET INSTEAD OF "BULLING" IT.

The editor of the *Western Honey Bee*, in the May issue, throws a bomb-shell into the honey market that will not soon be forgotten by the beekeepers of the State. It is hard to imagine any thing that could have been done that would have depressed the honey market to the extent that the article spoken of above has done. The beekeeper is always more or less prone to be nervous over the markets, and such reports almost scare them to death. I have heard year after year just such reports, but, as a rule, from representative honey-buyers; but this, coming from the pen of the very man above all others who should bull the market to the best of his ability, has caused profound indignation among beekeepers of this section. The editor of the *Western Honey Bee* is a personal friend of the writer, and his knowledge of the bee business is fully recognized; but it is my opinion that he has made a mammoth mistake in giving such a pessimistic report of the market, especially when every condition locally was in favor of a steady market, at least, rather than against it, so far as the outlook for sage or other white honey is concerned. The eastern output at that date had not yet begun, and there was a chance rather for a shorter crop than last year if we follow the trend of events in the past. The few carloads of honey in and around Los Angeles is not going to injure the market to any great extent if there is an outlet elsewhere.

The writer has followed the bee business 18 years in the East, and is in position to say that it is indeed very seldom that one honey crop follows another the next season in the same locality. If I may venture a prediction, the East will not have as large a crop this season as last. One of the unpardonable things said in the above article is the following quotations: "And let us welcome a period of low prices for honey as wonderfully stimulating to its consumption;" again quoting, "When two or three sections of good comb honey can be bought by the working man for a quarter, and when the tin pail can be filled at the grocery with a gallon of good extracted honey for 50 or 60 cents, then we can do business; there will be a demand that all the beekeepers of the coast will be unable to supply." The last of these quotations is absolutely true, for the reason that, with honey at the price named, there would be few beekeepers to supply any demand that such conditions might bring about. Honey in its purity is a luxury, has always been so, and always will be, from the fact that the bee business is uncertain at the best, so much depending on the vagaries of nature, the loss by disease, and at the present time the expense of equipping for the business. A man can not afford to pay the present prices for hives and equipment, nor even for bees, and sell honey at such prices. It would be the ruin of the industry from hive-factory down.

I see no reason why the beekeepers of Southern California should sacrifice the first crop of sage honey obtained for three years when, on the very face of the facts, the crop cannot be a large one. Raising honey to feed the poor is folly.

[There is a chance here for an honest differenec of opinion as to the best policy to pursue. Perhaps it would have been better to have kept quiet; on the other hand, if conditions are as the editor of the *Western Honey Bee* reports (and there are some grounds for his fears) it would be folly to put prices too high, for the result later on would be a fearful slump, smashing the market into smithereens.

We agree with Mr. Chadwick that it is seldom that one good year is followed by another good one. We do not believe that we shall have as heavy a crop of clover in the East as we had last year. If clover falls down even a little it will boost prices in the West, without question. Undoubtedly our policy at the present time should be optimistic until we can learn what the East is going to do as well as some parts of the West. A few carloads, either of comb or extracted, here and there, left over from last season, should not depress prices too much. For the present, at least, it is wise for us to "look and listen." Prospects for a clover crop are good. But prospects have been just as good before, with practically no honey later.—ED.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SURPLUS INCREASED TENFOLD, ETC.

I suppose I have been keeping bees in a crude form, or in the old-fashioned way, for I have allowed my bees to swarm naturally, hiving all prime swarms, one in each empty hive, and doubling up after-swarms till a fair colony was made. In this way I have secured an average of fifty pounds from each old colony in the spring, and supposed I was doing fairly well until a few weeks ago an old man who had been making a specialty of beekeeping for thirty years told me that the surplus from any apiary could be increased tenfold by allowing only *one swarm* from each colony. Now is that right?

Without doubt the statement is exaggerated. It would seem that you can safely count on fifty pounds of comb honey in a good year from each good colony, and allow them to swarm just as they please. With one hundred good colonies, that would amount to 5000 pounds. Now by allowing only one swarm from each—which any active man could easily manage—if that amount could be increased tenfold, or to the amount of 50,000 pounds, the crop would be worth, at ten cents a pound, $5000. Perhaps this is something in which location "makes all the difference in the world;" and if so it would seem that the most of us must claim a location much inferior to that in which this specialist beekeeper lives.

However, there is *something* in what you were told regarding restricting your swarms to only one from each old colony in the spring, where natural swarming is allowed. In my early years I allowed the bees to swarm as they desired; but I soon found out that, if any after-swarm left the parent colony, all prospect of any surplus honey from the parent colony went at the same time, the prime swarm giving all the surplus, as the after-swarm would do no more than to build up for winter, as in the case of the old colony. But by limiting the old colony to just one prime swarm, the old colony, if rightly managed, gives fully as good a yield in surplus as the prime swarm. In this way the colonies may be doubled each year, and the surplus doubled as well.

With the bad wintering which came to the bees along in the eighties, this doubling during the summer was quite a comfort to the one who found his losses each winter to average fifty per cent of what he had in the fall; while an average of 100 pounds of comb honey for all of those ten years of the eighties gave a zest to the beekeeper's life not found in the fifty-pound yield. But the days of swarms to be hived in separate hives have seemingly passed by with the most of our practical apiarists. By taking this swarming matter in our own hands, swarms can be made at pleasure, or swarming be done away with, and a yield above what could be done by natural swarming brought about. By retarding the desire of the bees for natural swarming through putting on a hive of combs until the yield is about to come on from the flowers which give us our surplus crop, and then placing this upper hive of combs, now partly filled with honey, by way of exchange for the lower hive of brood, and then shaking all the bees from their brood and the hive containing it, so that they run in to what was a few minutes ago their surplus apartment, great results can be obtained in the sections, even in a poor season. At time of shaking, supers of sections are put on, and thus the sections become the storage room, while the honeycombs the bees were eagerly storing in a few hours ago are being emptied to give place for the eggs the queen will be depositing in the cells as fast as the honey from them is carried above. And that which is coming in from the fields, mingled with that which the bees are carrying up from below, causes the sections to be filled as by magic, and all swarming is done away with.

WHY BEES DO NOT LOSE THEIR STINGS WHEN STINGING OTHER BEES.

Another correspondent wishes me to tell why bees when stinging other bees do not lose or leave their sting, the same as they do when stinging the beekeeper. From what I myself have seen, a slight prick is all that seems necessary to kill a worker-bee, the sting not entering far enough so that any of the barbs on the sting enter the wound. This does not seem to hold good in the case of the queen; for on several occasions where I have had queens stung in the thorax, where the wings, legs, abdomen, or head is attached, the sting was universally left. On the other hand, most of those who have kept bees for any length of time have noticed how quickly a colony into whose hive a small runaway swarm has come will dispatch that swarm without leaving a sting in a single bee. An old beekeeper once told me that a bee had to strike a person, as does a hornet, in order to sting, otherwise she would not sting at all. This hardly holds true; but she needs the impetus motion gives her, or something to hold her to the work, so to speak. Certainly a "laying hold" is necessary for the bees to drive the sting into any thing so that it will penetrate beyond the barbs that are on it; and when penetrating to such a depth, the sting must be left,

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Nailing and Wiring Frames; Second Paper

BY ARTHUR C. MILLER

In a previous article I tried to show the loss in using poor combs, and how some seemingly good combs are not as good as they appeared. In this paper I will give the fundamental steps for securing combs of the highest quality in the most economical way. The methods I shall describe are those I use; and I describe them because with them I get the desired results. There may be better or more rapid ways, and other persons might use my methods more rapidly than I do. They are not new unless, perhaps, in some minor things, nor are they of my own invention save in two or three parts; but the union of them all is mine.

Before I describe the methods, I want to lay emphasis on the fact that good results are due to the attention to every detail, to having every thing right, and doing every thing as thoroughly as possible.

First, buying the frames. Get only good accurately made frames—those that are made of good lumber, and cut with sharp saws. I say, "cut with sharp saws," because some manufacturers are not particular, and send out frame stock with feathers enough on it to clothe a big flock of poultry. And those fuzzy edges hinder and prevent good work. At present prices every frame should be like fine cabinet work; and if they are not, then try some other maker.

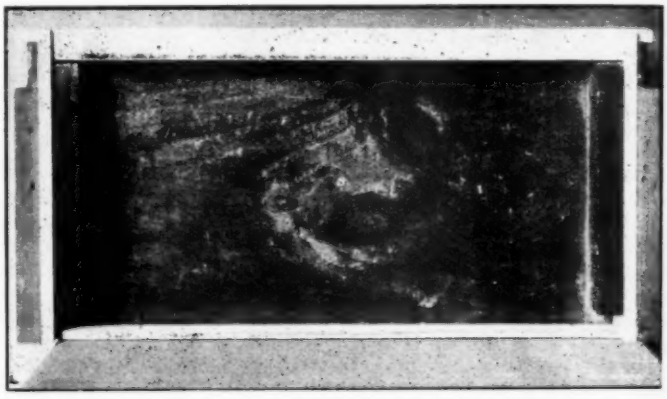


Fig. 1.—A. C. Miller's frame-nailing jig.

When good frame stock is secured, the frames must be nailed up *square*, and with nails which will hold them so. For accurate and rapid work a "jig" is indispensable. Beekeepers usually say "forms;" but by either term it is a device for holding the parts of the frame firmly in proper position while being nailed. There are all sorts of devices, but I prefer the simple one shown in Fig. 1, with an unnailed frame in place. It is a plain, thoroughly seasoned straight-grained white-pine board, with four cleats on the front, as shown, and two across the back—the latter to keep it stable when on edge, leaving the hands free for hammer and nails. No buttons or springs are needed if it is *accurately* made and the frames accurately cut.

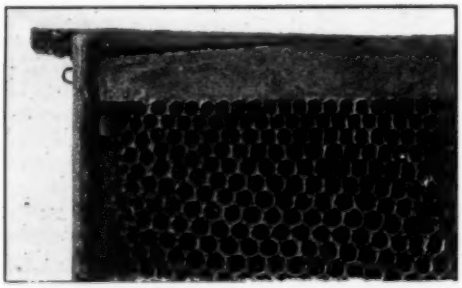


Fig. 2.—Broken frame that was nailed through the end-bar to the top-bar.

In nailing I put two nails through the top-bar into each end-bar, and one through the end-bars into each end of the top-bar. This is the opposite of the manufacturers' instructions; but please remember I am telling the way *I* work. My way is more rapid; and, from experience with both ways, I like it better. I don't have frames break like the one shown at Fig. 2, which was nailed the manufacturer's way.

Rapid nailing of frames demands system. The different pieces should be stacked in piles, each kind by itself, and all pieces of

each sort the same way, and all piles always in the same place on the bench. The nails should always be in one place, and the hammer should be of the right weight to drive the nails with the least number of strokes, and at the same time not so heavy as to bend them. When every thing is so arranged, work is rapid, the procedure being as follows: The two end-bars are put into the jig, and then the top-bar and the four top nails driven; then the one nail in each end. The bottom-bar is next inserted, and *two* nails driven in one end only, the other end being left unnailed. Some persons use only one nail in each end of bottom-bars; but I believe it poor economy. The frame is then removed from the jig, and the frames are piled in a convenient place for the next operation, which is putting in the staples. I nail until I am tired or the pile gets inconveniently high, and then change off to stapling.

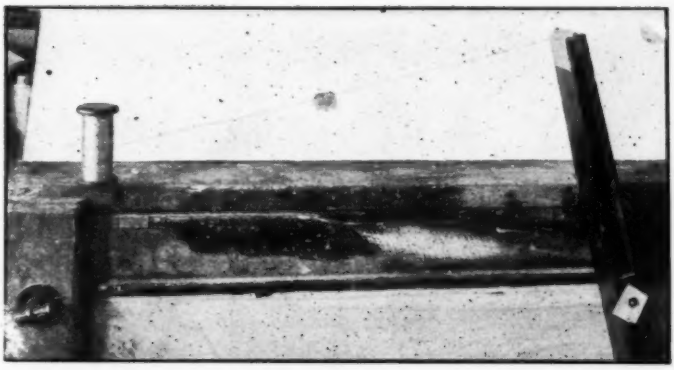


Fig. 3.—Winding the wire on A. C. Miller's wire-stretching reel.

Preferably (because more rapid) the staples should be put into the end-bars before the frames are nailed up; but the staples best for the purpose are so long that they project through the end-bars; therefore stapling is done after the frames are nailed. A metal block is used for stapling. It is like the wooden one which the manufacturers supply, except that it is a little longer. Try it and you will soon see why it is better. As fast as stapled, the frames are stacked with the unnailed ends of the bottom-bar, all in the same direction, and ready for the next step, which is wiring.

Wiring is a fine art. If one may judge by the many methods illustrated and described in times past, very few persons know how to do it in a rapid way or with the best results. Unless the wiring is thoroughly and properly done through every stage, speed is impossible, and satisfactory combs will be the exception.

The first step is stretching the wire. Wiring from the spool is an absurdity. The method I use is best shown by the photograph at Fig. 3. The big spool of wire is mounted on a pivot on which it will turn by a slight pull on the wire, but will not spin and cause the wire to kink and snarl, and this pivot is held in the bench vise. The reel, or stretching-board, is shown in detail in Fig. 4. This is pivoted on a bolt through the front of the bench, and is rotated by the right hand while the wire slides through a greased cloth in the left hand. If the spool of wire frictions on its pivot properly the "drag" will be uniform and all the wires will be wound on the stretching-board with uniform tension. When wire for about fifty frames is wound (count as you wind), the wire is made fast to a tack on the stretching-board, and severed from the spool; but *don't* let go of the end leading to the spool. Wind the surplus back and make the end fast to a tack in the end of the spool. You will not forget this precaution more than once, I assure you.

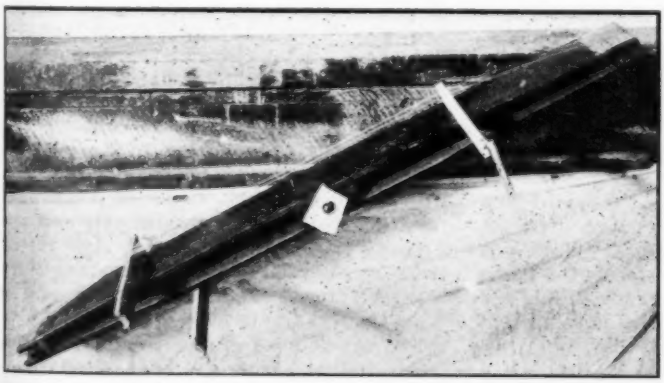


Fig. 4.—Stretching the wire on the reel.

A word about the

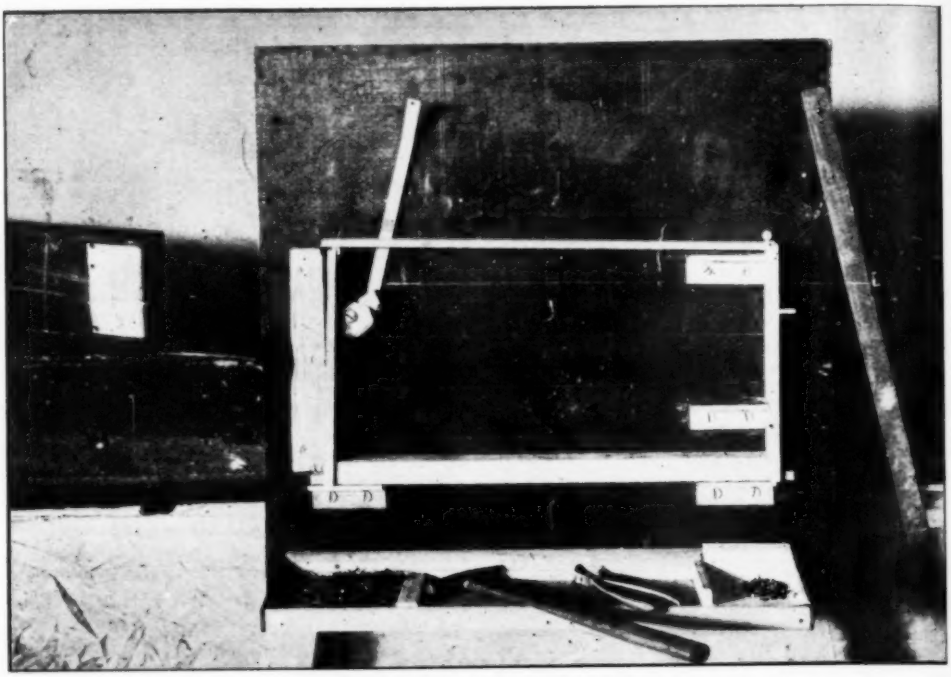


Fig. 5.—A. C. Miller's frame-wiring clamp.

wire, and handling it. Be sure that the wire you buy is new and bright. If it is brown or rough, send it back, for it has begun to rust and will be rotten, and break. Wipe machine oil or vaseline over the wire on the spool when received, then it will keep until you need it. I keep mine wrapped in an oily paper when not in use. In reeling it, the oily cloth keeps the salty moisture of the fingers off, assures a greasy coating to the wire, and also prevents sore fingers. Take pains to avoid kinks at all times. A kinked wire will break, and a broken wire costs heavily in time.

When enough wire is on the reel—fifty or sixty wires are all that stretch rapidly and easily—stretching begins.

A table-knife or putty-knife is slid under the wires on one side, the wires lifted slightly, and a stick pushed under—I use a frame end—and the operation is repeated on the other side. Then the sticks are turned on edge, banjo-bridge fashion, other sticks inserted nearer the ends of the board and turned up, and wider sticks used until the wires are as tight as safe. Try until you find the limit. In a few moments the sticks can be turned down and removed, and the wires will be found to lie nearly straight with little or no tendency to curl when cut. Soft string is wound twice around the board near each end, and also at each side of the center, where the pivot is, and tied tightly. The wires are cut by slipping the scissors in the recess at one end, as shown in illustration No. 4.

The L-shaped hooks remaining on the wire ends are then all cut off, leaving the wires as straight as needles for threading through frames. The slight amount of wire wasted is too small to consider, particularly when we view the results. I use rubber bands to hold the wire instead of soft string, but either will do.

The stretching-board is made of two half-inch boards, four inches wide, nailed to blocks as shown. The ends are covered with tin to prevent the wires cutting in. Headless nails or conical-headed tacks (see No. 3) are driven in the ends to prevent the wire slipping off while reeling. The board is 43 inches long, and the wires, after cutting and trimming, are 87 inches long—just long enough for easy work. Don't try to save on wire by using shorter pieces. You will lose in time and temper, and get poor results. With the wires straight, and the "spring" and much of the stretch out of them, we are ready to begin threading them into the frames. To do this rapidly, and to make the wires so tight they will "sing," we must have a good jig to hold the frames firmly. Mine is shown in illustration No. 5. It consists of a piece of heavy plank, old,

straight, and free from tendency to warp, supported on legs, and having at its lower edge a shelf for nails, tacks, and tools. The various cleats and angle irons are so located as to furnish support at the right places, and not interfere with threading the wire, and yet hold the frame firmly without any springs or other contrivances. The various parts have been outlined with white to show them more plainly. The board is stained dark for the sake of the eyes, and, incidentally, wires are seen more easily.

The frame is put into the jig with the bottom-bar up, and the unnailed end to the left. The reel of wire is conveniently at hand with the looped end of the wires toward me. A loop is seized, and the wire pulled out.

When the ends are almost free the other hand grasps the wire close to the ends, and both ends are started through the middle pair of holes; for as long as one's head is tipped to one side, it is as easy to start two wires as one.

The ends are then seized with the other hand, *both* wires pulled across, and the process repeated at the other end of the frame.

As the wires are drawn snug, the upper one (that nearest the bottom-bar) is dropped while the other is laced back through the holes next to the top-bar, and then the other wire is treated likewise. As the end of the latter is drawn through the last hole, it is made fast about the two headless nails on the lever at the right by wrapping, as one wraps a rope about a cleat. Then a 2½-oz. tack is put at the top and bottom opposite the ends of the angle irons, as indicated, and these tacks driven in, because the wires are to be wound firmly about them. The lower end is wound completely about the nearest tack twice—that is, three sweeps of the hands; more is too much; less is not enough; the wire cut, and the tack driven home. I cut the wire before driving the tack, as I do not appreciate sharp points of wire which are left if cut after driving. I use and prefer cutting-pliers rather than scissors, as they are handier, and one is less likely to cut the wire at some other place at the same time.

The wire is now ready for tightening. The lever at the right (which is to save fingers rather than for power) is siezed by the right hand and pulled firmly to the right, while the left hand "walks up" the wires in the frame much as shown in the dealers' instructions for tightening wires. The first wire is pressed down, then the second, then the third, while the lever takes care of the fourth and all of the slack. The process is repeated three or four times.

The left-hand end-bar is thereby pulled in at the free end one-half inch, until it rests against the cam, as shown in No. 5. The wire is pulled from the nails on the tightening lever, drawn snug, wound about the upper tack, cut, and the tack driven home. The handle actuating the cam is then moved until the end-bar is out to its place. The cam handle (a springy piece of iron) is caught behind a nail placed for the purpose, and the free end of the bottom-bar is nailed.

All the wires sing when struck, like the strings on a banjo. There is no stretch nor give to them under any load they will get while combs are building, and the frame is absolutely square. They are ready to hold foundation properly.

It has been asserted that the lowest wire will be the tightest; but the difference between it and the others is not appreciable. The description is necessarily long, but the actual work is rapid. Rarely is a wire broken; but when one is, it is cut out and a new one put in. Never try to mend or piece it.

As to time used in the operation, I nail and staple 35 to 45 frames an hour. Winding and stretching the wire for fifty frames takes about five minutes. Wiring from the time a frame is picked up until it is laid on the finished stack is just 1½ minutes, and I regularly do 30 an hour, including stretching wire, moving finished work, and getting a fresh stack at hand.

I have seen no process to equal it in results, and very few to approach it in ease and speed. I am now nearly half through the third thousand fixed by these methods.

Putting foundation into such frames is a swift and easy matter, and will be explained and illustrated in another issue.

Providence, R. I.

ARE BEES ATTRACTED BY THE COLOR OF BLOSSOMS?

BY JAMES A. GREEN

The article on the color sense of the bee, page 106, is extremely interesting to me. The experiments narrated therein seem to prove fully that bees have at least some perception of color. But I cannot agree with the author when he concludes with the statement, "The old theory that the colors of flowers are designed to attract the in-

sects . . . . has been successfully vindicated." Granting that it has been proven that bees can distinguish some colors, it does not by any means follow that it has been proven that the colors of flowers are designed to attract bees or other insects, or, in fact, that they have any attraction for them. I have never been able to reconcile myself to this theory, although it is one that is almost universally accepted by botanists.

It is but a forlorn hope to attack a citadel so strongly garrisoned by the wise ones of the world, but I will at least throw my little pebble. I shall not attempt to make an exhaustive review of the subject, but will point out one or two particulars in which it seems to me the theory does not agree with well-known facts. One of these is that many of the most beautifully colored and elaborately marked blossoms seem to have no attraction for bees, which visit them but little or not at all. The counterpart of this is that the blossoms most visited by bees are usually very inconspicuous in their colorings and markings.

The popular idea on the subject of honey-gathering is well expressed by the poet who wrote of the bee that "gathers honey all the day from every opening flower." Only the practical apiarist knows how comparatively few are the varieties of blossoms that are of much value to the bee. While bees work to a greater or less extent on a great number of flowers, those that are most attractive to them, and from which the world's supply of honey is gathered, do not make a very long list. What are the principal sources of honey supply? In the United States and Canada, white clover, sweet clover, linden, heartsease, buckwheat, sage, alfalfa. All of these, with the exception of alfalfa, are white, tinged with low tones of green, yellow, and red. White clover and heartsease are greenish white, more or less tinted with red. Sweet clover and buckwheat are greenish white. Linden, or basswood, is yellowish white.

The sages and mints in general, such as horsemint, pennyroyal, catnip, etc., are, as a rule, very modest in their coloring. So are willow, orange, raspberry, cotton, mangrove, catclaw, mesquite, locust, and other members of the acacia family. So too are the heather of Europe, the campanilla of Cuba, the logwood of the tropics, and many other plants of greater or less renown as honey-producers. I might go on and extend to great length the list of flowers that are favorites with the bees, yet are neither brilliant in hue nor conspicuous in their markings.

We are told that blue and violet flowers are preferred by the bees; yet among the blossoms that are good yielders of nectar, and so more attractive to bees, red tones are far more common than blue ones. Alfalfa, the blossoms of which range in color from light blue to deep violet, is the one conspicuous example that comes to my mind of a blue blossom that yields much nectar. But the bees do not visit the deeply colored ones any more than the light ones. Neither do they visit flowers of other tints. The blossoms of an apple-orchard vary from pure white to a deep pink; yet the bees show no preference, and the white blossoms of the Ben Davis are as well fertilized as the pink blossoms of the Winesap. But, according to the experiments of K. V. Frisch, bees cannot distinguish red, so that markings in this color or variations in its tints are not to be considered, even according to the color theory, as influencing the attractiveness of blossoms to bees; and all blossoms so colored or marked are to be considered as of neutral tint, so far as bees are concerned. So alsike clover, with i s deeper tints of red, is no more attractive to bees than its white cousin, and the still deeper tones of red clover are not in the least attractive to bees until its flower tubes are filled nearly to the brim with nectar.

Can it be possible that the blossoms have been working in different directions in their development? Have some adopted bright colors and varied markings to attract insects while others have followed the more practical plan of rewarding their winged helpers with generous supplies of nectar instead of painted promises?

If so, the latter would seem to have the best of it, so far as the bees are concerned.

Grand Junction, Col.

[Our correspondent is usually very accurate, and it is seldom that we can pick a flaw in his logic or his facts; but on this proposition, at least, we believe his facts *support* rather than disprove the old theory that colors are designed to attract insects rather than otherwise.

Our correspondent makes the point that blossoms most visited by bees are *usually* very inconspicuous in color and markings. In this he is absolutely right. If that is true, does it not contradict the color theory? Not at all. Flowers have two ways—yes, and we might add a third—of attracting bees and insects so as to bring about cross-pollination. First and foremost is nectar; next, color; third, pollen. Sometimes the flowers employ all three methods. Where cross-pollination is very important we sometimes find the complete combination. The blossoms that yield the largest amount of

nectar are very often inconspicuous in their colors and markings. The more abundant the nectar, the less color; but in a few cases, at least, nature seems to furnish a double attraction—color as well as nectar. Alfalfa, a few varieties of apple-trees, orange trees, red and crimson clover, are conspicuous examples of these. A list of blossoms that attract bees only by nectar might include such plants as the sages of California, basswood, raspberry, and the palmetto; but most nectar-yielding blossoms that yield honey in commercial quantities have a little color. Conspicuous among these are white and alsike clover; and right in this connection our correspondent refers to the white-colored blossoms of the Ben Davis and the pink blossoms of the Winesap apple-trees. He goes on to say that the one is as well pollinated as the other, notwithstanding one has more color than the other. But, mark you this fact: The Ben Davis is largely a self-pollinating tree, while the Winesap is almost wholly dependent on the agency of insects, particularly bees. It has been positively demonstrated that the Winesap can not be produced without bees. Does this not show that color is, after all, a factor? When a tree or plant is self-sterile to its own pollen it must put out, in addition to nectar to attract insects, color; hence we shall probably find self-sterile trees and plants furnishing nectar having more color than the self-pollinating kinds.

Flowers that are large and showy in color and markings usually have little or no nectar. What's the "show" for, then? To get the bees to visit and cross-pollinate them. A preponderance of color or nectar is for a purpose—to mingle the pollen. Again, plants that are wholly pollinated by the wind, and hence do not require the help of insects, are totally without color except the color of the plant. An example of this is the grasses.

Darwin has shown how nature constantly adapts itself to conditions. As he has pointed out, there seems to have been a constant progress in development all down the ages. In the line of this wonderful adaptation we find papilionaceous flowers, like peas, beans, and locusts, furnishing convenient doorsteps on which the bees may alight to get the nectar which the plants offer. We also find that most of the blossoms are adapted to the size, capacity, and tongue-reach of certain classes of insects, notably the bees.

In this connection, red clover with its long corolla tubes might seem to be an exception; but it is a very marked example of how nature furnishes color to attract bees. The corolla tubes are so deep that the common honey-bees and even the humble-bees cannot reach the bottom of them. When there comes a drouth, nature temporarily shortens these corolla tubes; but all the time, she puts out the brilliant color and the sweet aroma from the nectar, which the bee may or may not be able to get. We have seen the honey-bees time and again go over the red-clover blossoms trying to reach the nectar, and yet apparently fail. But some blossoms will furnish them nectar, and it is worth while for them to go over *all* the blossoms. We venture to say that, if the red clover had shorter corolla tubes, there would be less color, and hence less need of putting out a showy blossom to attract bees. We find corroboration of this in white and alsike clover. They have very short corolla tubes, and a great deal less showy color. White clover is the most important honey-plant, and it is much less conspicuous in color than the alsike.

If our correspondent will go into this matter very carefully he will find that nature has "method in her madness;" and the more we study this, the more we shall see the evidence of this "method."—ED.]

PREVENTION OF ABSCONDING DURING TREATMENT FOR FOUL BROOD; ALSO BLOCKING UP TO PREVENT SWARMING

BY WM. W. CASE

I notice what A. F. Wagner says on page 137, Feb. 15; also what the editor says on page 123, same issue, concerning bees absconding during treatment for foul brood.

I think you will both find that the cause of absconding is demoralization *and fear of starvation*. I don't think you will have any trouble in keeping treated colonies on full sheets of foundation (at least, I don't), if the treatment is done, as it always should be, just at night, on account of robbing, and hived on half a dozen sheets of foundation placed in one side of a ten-frame hive and a common baking-tin about 1½ inches deep, 3 to 4 wide, and a foot or more long, placed in the other side. Sprinkle cut straw half an inch deep in the bottom, and put every drop of a rich sugar syrup in the pan that the colony can take up. If very sultry next morning, shade the entrance and place ¾-inch blocks under each corner of the hive.

If field stores are not coming in plenti-

A part of the apiary of E. A. Duax, Chippewa Falls, Wisconsin, roof of bee-cellar in the background. The yard is sheltered on the west and north by a cedar hedge.

fully, in 48 hours very quietly (so as not to break the wax curtain) refill the pan with ¾ the former quantity of syrup, and I think you will say farewell to absconders. A division-board reaching within an inch of the bottom may be placed between the feed-pan and the foundation, but it is not necessary, and I do not always do so. Any kind of feeder may be used in place of the pan if it may be refilled without breaking the cluster.

Absconding swarms are hardly likely to carry the disease, as they usually abscond because they are *not* gorged with honey; but in diseased sections of the country all swarms not known to be absolutely healthy should be hived on full sheets of foundation, and left the four full days before being disturbed. (See five principles of treatment, June 15, 1913, page 406.) One frequent cause of absconding is that shaking out has been done so rapidly that the bees do not have time to fill their honey-sacs. Considerable has been said concerning blocking up hives to prevent swarming. Will it work? Yes, sometimes; and when the subject of swarming is fully understood, perhaps it possibly can be made to work at all times.

In 1913 our clover flow was light in central New Jersey, not many colonies filling more than one super, and many not that much, down to nothing. In clover, 70 odd colonies cast two prime swarms. The first week in August started with a good buckwheat flow, and the second week the same, accompanied by that warm, sticky, sultry condition so well known as setting bees swarming crazy, and things began to develop rapidly. On August 14 one swarm issued, and two on the 15th, with the whole apiary getting ready.

Fifty were immediately placed on inch blocks, and not another swarm issued. Several apiaries within a few miles swarmed one hundred per cent, or more. Mine swarmed less than seven. I have practiced blocking up more or less for several years, always to my advantage. I do not pretend to say that, with out present knowledge, this can always be accomplished, especially during June, with its bright, glad, flourishing days, when nearly every thing, including bees, takes life at its fullest, and when the only fly in the ointment of content is also the sultry, sticky June nights when no real live person can sleep with the windows down, and perhaps we may then begin to realize what full ventilation may mean to an overcrowded colony of bees at the height of the normal season of increase, so strong-

ly developed in all nature, and confined heretofore in an airtight box, and tortured all day by a nearly tropical sun.

I believe that, with just a little more knowledge on the subject, comb-honey production will soon be less handicapped by swarming than is even now the case with apiaries run solely for extracted honey, and often wonder if there would be room on this great earth for just one more new and perfect hive.

Frenchtown, N. J.

A WELL-LOCATED APIARY, BEE CELLAR, AND HONEY-HOUSE

BY E. A. DUAX

[The following article should have appeared in our May 1st issue, but was left out by an oversight. The first picture mentioned is that shown on the cover, May 1.—ED.]

We have a two-story honey-house, 14 x 28 feet, located very near our apiary. The rear door leading to the beeyard is at my left in the picture (cover picture May 1). From the beeyard it is down hill, which makes it easy to run in heavy supers filled with honey to be extracted. The second story is used for a store room, where five tons of honey were stored last fall. It has a rubberoid covered roof, which makes it an ideal place to store honey. We raise the honey to the upper story with a home-made elevator run by a gasoline-engine which also runs the extractor. We can elevate between 700 and 800 lbs. to a load. Beeyard is sheltered on the north by a cedar hedge.

E. A. Duax and family in front of their home which the bees helped to build.

The building at the extreme left, of which you can just see the roof, is the one shown at the left in Fig. 1. The roof shown in the rear is the bee-cellar. It is built on a side hill facing the south. It is very handy for putting bees in and taking them out, for there are only two steps to come out or go in. Two men with a stretcher can handle 75 colonies in about two hours easily.

This cellar is not used for any thing but wintering the bees. The cellar ceiling has ten-inch joists lined on the under side with paper and matched lumber, then about 6 inches of sawdust; or four-inch dead-air-space floor of matched lumber, and about 7 inches of sawdust on top of it, which makes it frost-proof. It has a 10 x 10-inch ventilator reaching within ten inches of the bottom of the cellar. I have also an intake ventilator 60 ft. long, leading to my bee-cellar, 6 ft. deep inground, which works finely, keeping temperature about 42 degrees Fahr.

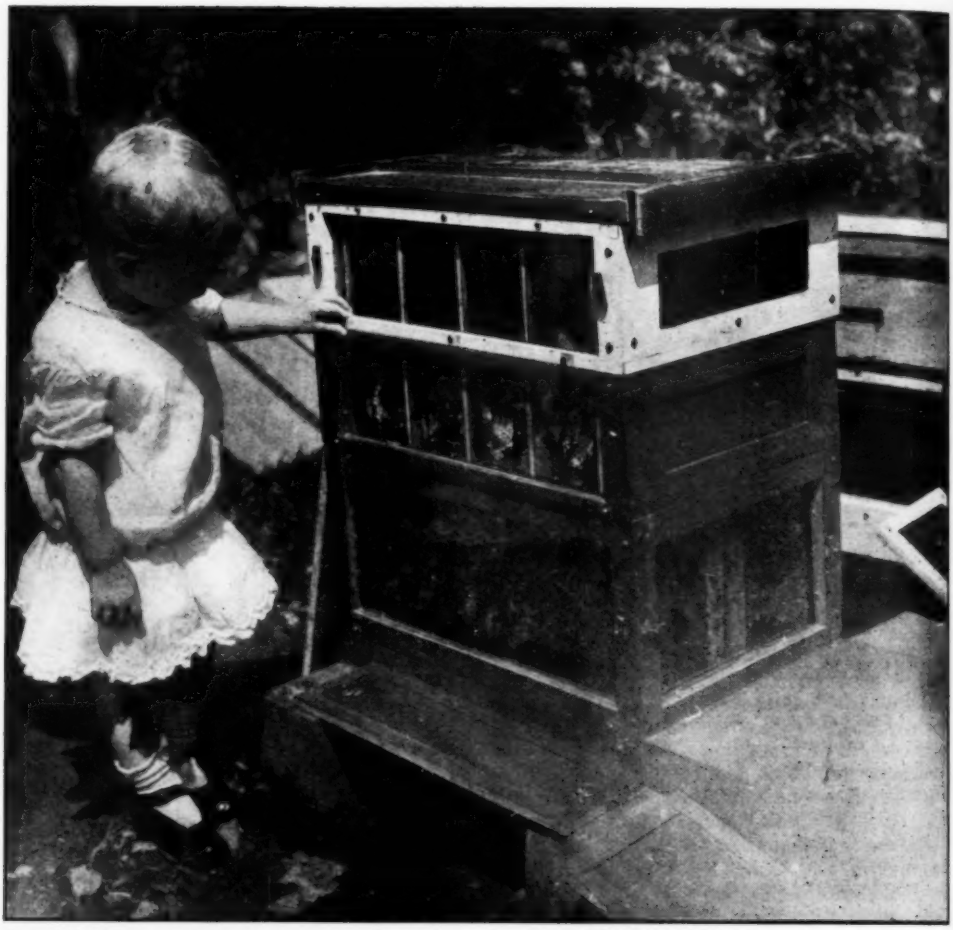
Chippewa Falls, Wis.

BANKING AND BEEKEEPING

BY J. J. MOYERS

I am sending two pictures together with a newspaper clipping which appeared in the Nashville *Tennessean and American* a few months ago. I thought that perhaps you would like to use these in the news columns of GLEANINGS.

My occupation is banking, which duties I perform above all. In place of being an athletic fiend I am a bee fiend, from which I obtain profit as well as pleasure. I have 85 colonies, all in ten-frame hives, two and three story, also two apiaries which are



J. J. Moyer's Observer observing bees in an observatory hive. Mr. Moyer and his family are shown in the cover picture for this issue.

located within the city limts, and then come my two observation hives, one of which is kept the year round in my dining-room window, and which is my daily study. In these two hives I have the golden Italians.

I am trying to get the people to take more interest in bees in this section as there is not a better location in the State.

Fayetteville, Tenn.

[It is doubtful whether there is a class of professional or business men not represented by some enthusiastic beekeeper. Our correspondent is certainly an enthusiast, and we feel sure that he finds his work in the bank less tiresome because of his hobby.

Our cover picture for this issue gives a very good picture of Mr. Moyer, his family, and his bees.—ED.]

NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

The article by H. H. Root in the November 15th issue, page 799, on putting foundation in brood-frames, is very interesting. The illustrations are so clear that a beekeeper who has had only a few lessons may easily understand it.

I use no grooves with wedges to hold the foundation. I solder it on the top-bar with melted wax. If the wax is warm enough it will hold as much weight as the foundation will stand, but will not stick well if it is too cool. It should be just warm enough so

that it will not melt the foundation. A board is used about ¼ inch smaller than the inside of the frame, and thick enough to hold the foundation in the middle of the top-bar. On the two long sides of the board is nailed a thin lath a little longer than the frame, and extending about one-half inch over the sides. The foundation is laid on the board and the wired frame upon it, care being taken that the sheet touch the top-bar the entire length. Board and frame are firmly held in the left hand with the top-bar down, and so inclined that the melted wax poured in the upper corner will run down rapidly. It is better not to pour too much wax on one place, as there is danger of the foundation melting at that point. Keep the hot wax constantly pouring out in a thin stream. We have a handy alcohol-lamp with a spoon that can be removed, which is used to melt and pour the wax on the top-bar. When the spoon is removed, the wire-imbedder may be heated on the flame.

After one side of the foundation is fastened, the board is removed and the frame held in the left hand in such a position that, with the right hand, melted wax can be poured on as before. The lamp is allowed to burn, and the flame is regulated to suit. Lamp and spoon are used as one piece. The spoon is removed when wiring foundation, and the imbedder put in its place. The one I use has V-shaped grooves in the teeth so the wheel can't slip so readily. Between the handle and the center of the wheel there is an extra-heavy metal part that helps to keep the teeth at the desired temperature.

UNCAPPING-FORKS.

I do not use an uncapping-knife, but a fork constructed for that purpose. I can uncap as rapidly with it, because I am not used to the knife. No warm water is needed.

A NICE CHRISTMAS GIFT.

Queen Victoria, of Sweden, gave the Crown Prince (heir apparent) a Christmas present of a quadruple hive (four hives built in one), with roof and base, together with the frames and tools necessary. It was made in Baden. She sent a Swedish beekeeper to Baden last summer to learn how beekeeping is carried on, and to see what is being done there to foster and to advance the interests of beekeepers. Her Majesty, no doubt, has risen in the estimation of all beekeepers.—*Die Biene u. i. Zucht.*

WATER FOR BEES.

German bee-journals mention the necessity of providing water for bees where nature does not supply it near the apiary. A dish with something in it, such as small strips of wood, excelsior, straw, etc., to prevent the bees from drowning, will suffice. A couple of barrels with arrangement for continual drip (a spigot, cock, or siphon) would be convenient for large apiaries such you have in America. The barrel should stand on a foundation 1½ or 2 feet high. The drip should fall on a slanting board with rills, or be covered with gunny sack, etc. When bees have young brood they need much water. A large force of bees is needed in the apiary to carry water. In early spring the weather often changes suddenly, and many water-carriers cannot return if they have to go a considerable distance. We often have very bad weather for several days in succession. It is not only the loss when bees are more valuable than at any other time, but the extra work saved to the bees would pay for the trouble of providing water in one or more places in the apiary. Warm water at about 70 degrees to 80 degrees Fahrenheit is recommended. A beekeeper can readily make an arrangement for warming it. A kerosene-lamp will supply the heat very cheaply.

OBSERVATION STATIONS.

In many of the provinces observation stations have been established. A hive on scales is weighed once or twice daily during a part of the year. The number of days and hours during which the bees fly, prevailing winds, the amount of rainfall, etc., are noted. These observations are sent monthly to the chief of observers, who tabulates the results and publishes them with comments. Bavaria has 31 such volunteer observers in the various parts of the kingdom. Switzerland has 39 such stations. The chief, Mr. Juestrich, in his annual report in the *Schw. Bztg.*, states that the 39 stations have 52 hives on scales, 44 of these having their frames in an upright position, and eight in the same way that you have yours. The top-bar is longer than the end. The average monthly consumption for colonies shown was—

November, 710 gr., or 1 6-10 lbs.
December, 688 gr., or 1½ lbs.
January, 794 gr., or 1¾ lbs.

The average consumption for ten years was—

November, 741 gr.
December, 888 gr.
January, 956 gr.

In Bavaria the average given for 1911 was—

November, 595 gr.
December, 446 gr.

In 1913,

November, 371 gr.

December, 621 gr.

In April the brood was measured in 14 colonies, showing an average of 34 dm., or about 544 square inches per colony.

SMOKERS.

We have a smoker with a clock and a fan that will blow smoke for about ten minutes. It can be made to smoke just a little or stop entirely, depending on the tension of the brake, which can be readily adjusted as wanted. I expect to use one this summer. I have been using a smoke-blower which is held in the mouth, leaving the hands free.

We have a water-pipe also. It is an atomizer, neat in appearance, and held in the mouth. By blowing instead of squeezing a rubber bulb, it makes a fine spray of water. I have not used one, but have read the praises of others. Whether it is because it is cheaply operated only, or because it subdues the bees, I can not say.

A regular brier tobacco-pipe made especially for the use of beekeepers is extensively used. For one that is a tobacco-user it is quite convenient, and will do very well for an hour or two.

Markt Oberdorf, Bavaria, Germany.

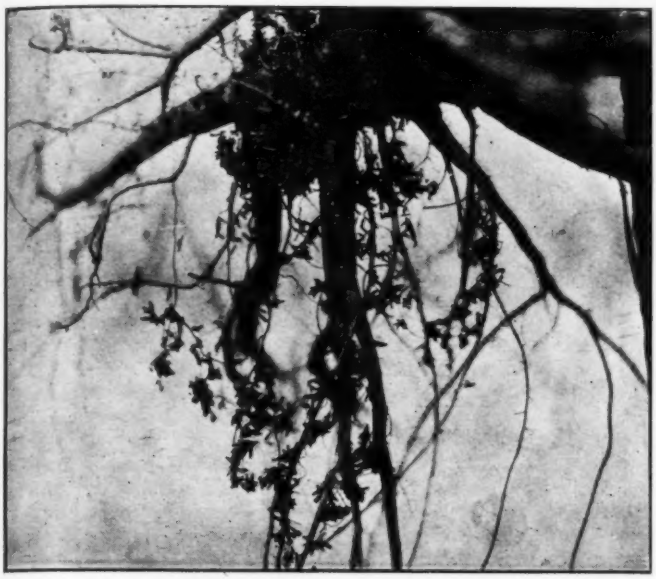
SOME DIFFICULTY IN OVERCOMING PREJUDICE IN REGARD TO SWEET CLOVER

BY WILLIAM BEUCUS

Several years ago I brought from Madison, where sweet clover grows along the roadsides, a quantity of sweet-clover seed. Part of the seed was planted in some soil which I had shipped for inoculation, and the remainder of the seed was scattered about the yard. The plants which grew in the box of soil I transplanted when they were a few inches tall, and these in every case flourished until it was necessary to lengthen my reach with a stick, as shown in the photograph, in order to touch the tips.

In the fall of 1909 a new road was opened to the south of our property; and when it was finished, I scattered upon it some sweet-clover seed. The following year, 1910, was the driest on record for this part of the country. The hay crop was a complete failure, and many farmers sold almost all of their cattle to avoid the expense of keeping them over winter; and yet during all of this time, when timothy and alsike and red clover were drying up, the sweet clover I had planted along the road

An exceptionally rank growth of sweet clover on Wm. Beucus' farm, Cadott, Wisconsin.



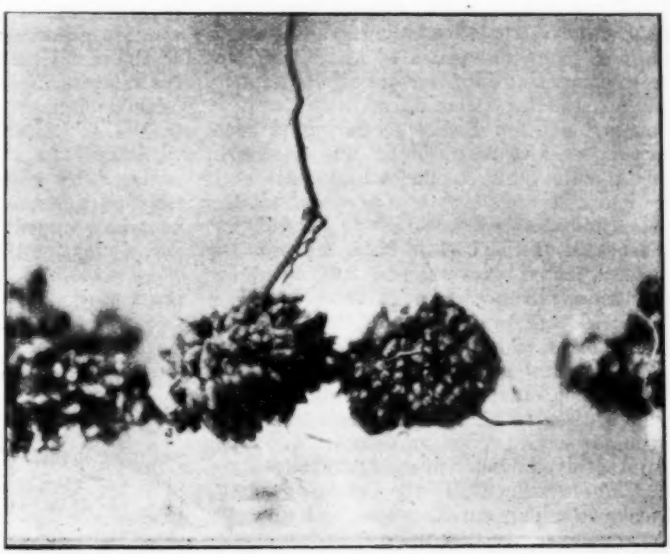
Roots of sweet clover. Note the "fat" fleshy roots, also the nodules in clusters.

was growing vigorously. In September it had reached a height of four feet, and the stems were as fine as alfalfa, as, indeed, they always are the first year. One naturally would have thought that the farmers would have noticed the contrast, and have given the sweet clover a trial; and yet, even though I called their attention to the matter at the time, and also later, no one was wise enough to experiment with this great legume.

I have called attention to the matter many times since, and have offered seed free to all who would give it a trial. So far not one farmer has shown an inclination to investigate the value of sweet clover for hay, although three have given it a test for pigs, and recommend it highly.

During all this time I had put in the hands of the farmers articles from farm papers, showing up the value of sweet clover; copies of The A. I. Root Co.'s booklet, "The Truth about Sweet Clover," were distributed, returned to me, and redistributed, but without results. The farmers thought, and still think, that that booklet is issued by a firm interested in honey, and, knowing that the sweet clover is a good honey-plant, have concluded that the Root Co. has an ax to grind.

A year or so ago I secured from the United States Department of Agriculture a copy of the bulletin on sweet clover, and let several farmers read it. One farmer who had read "The Truth about Sweet Clover," without being impressed, asked me for seed as soon as he had read the bulletin above mentioned. He has now tried it for pigs, and recommends it to others. But it is still impossible to find any one who will raise even a small patch of hay. Some say the stems are too coarse, others that the hay can not be properly cured, although they have never tried it. One farmer is inclined to look favorably upon sweet clover for the silo, but on this point I could give no information. Above all, there is still a great



A close view of nitrogen-bearing nodules in clusters on roots of sweet clover.

deal of fear of sweet clover as a noxious weed comparable with quack grass and Canada thistle. In Northrup King & Co.'s catalog for 1914, sweet clover is called "alfalfa's twin sister;" but at the very ending of the praise and recommendation of this plant occur these two significant sentences: "We suggest that you do not let it go to seed. It can then be controlled at all times." Thus if any good were done by what had preceded, at the very close it was all undone. If sweet clover possesses so many good qualities, why be afraid to let it go to seed?

Cadott, Wis.

PAINTED HIVES NOT BAD FOR GEORGIA BEES

BY L. W. CROVATT

At the risk of being "harpooned" by Dr. C. C. Miller, and being pronounced a common nuisance by the editor, I want to take another shot at this question of painted or unpainted hives.

Dr. Miller, in Stray Straws, p. 85, Feb. 1, admits that advocates of unpainted hives "agree that paint *is* good for the hive, but they think it isn't good for the bees."

Well, now, doctor, let us see. Admitting that I know nothing of climate and general conditions of your locality, I am discussing the question from a southeastern viewpoint. As it happened, I last year had the opportunity to make a study of this same question—the painted and the unpainted hive—in my own yard, and I can say with emphasis that there wasn't the least apparent difference in the relative strength, conduct, or storing ability of the bees in the painted hives and those which were unpainted.

This, then, would seemingly be reassuring to the Southern beekeeper. The insects in the unpainted hive were in no way different from the bees that were housed in hives resplendent with white paint. They most assuredly were not enjoying any advantages derived from an unpainted hive; were no more energetic; did not store any more surplus than the "fellows in the painted houses," and, so far as wintering is concerned, seem to be no better and no worse off than the other colonies in my yard, and we had a severe snowstorm here on Feb. 25—the first since 1899. So far as I could see, the health of the bees in both the painted and unpainted hives was about the same, so the theory advanced is incorrect—*here*.

But, doctor (and I submit this as a *big* but), you should have seen the condition of those unpainted hives. Here, you know, we have a damp climate, taking it as a general thing. The sun shines hot, and wood exposed soon begins to decay. The unpainted hive-bodies had split; "shakes," as the lumbermen call the odd-appearing breaks from exposure, were so thick all over the outer surface that there wasn't a space of half an inch free and unblemished; and the water, getting into these scarred places, had already begun the work of decay on the hives. They had turned black, and were a sight to see. They had been in use for *one season*. Painted hives to the number of 150 were in the same yard, and showed no great wear and tear after *several years' exposure*.

Now, considering the advance in lumber, which, of course, causes a corresponding increase in hive quotations, don't you think it would be prudent to paint, when by painting we may lengthen the life of the hive? Would it not decrease, or at least keep down, operating costs for the apiarist? Would it not be, let us say, "good business judgment" to paint, if by painting we may cut down our supply costs? I confess that I may, perhaps, be mercenary to a certain degree; but this thing of allowing the weather to rot and destroy the hives is something which does not appeal to me, at least; and it is an established fact that practically 99 per cent of the beekeepers in this region *insist upon painting*, and I assure you that they do have rousing colonies.

As a strenuous advocate of paint I also want to go on record as being a champion of the metal roof-cover. This is *the* cover for this region, for the excelsior, gable, and other devices heretofore given to the public by the A. I. Root Co. have been unable to withstand the climate and checking, soon replaced by gaping breaks; and, incidentally, rotting brood-frame top-bars may all now be avoided by using the metal roof-cover. Assuredly I paint the cover too—from the under side of the telescope to the last fraction of an inch of the metal cover.

The question of paint may be another of those matters covered by the expression "territory or locality," but you would have to talk with a mighty convincing and loud voice to make any one in this section quit painting hives. I honestly believe that paint does not interfere with the inmates of the hive "in this locality," nor is it prudent to be sparing with the paint-pot and brush.

Savannah, Ga.

A field of white aster in Kentucky.

THE WHITE ASTER IN KENTUCKY

BY JAMES S. JOHNSON

In the mountains of Kentucky we have two distinct honey-flows. The white flow begins with fruit-bloom, and lasts until the middle of July and closes with the sourwood flow. We may then have a dearth, owing to weather conditions. If it is rainy weather bees store no surplus until about September 10, when asters come in bloom, lasting until the last of October.

It should be the object of beekeepers to see that all colonies are kept populous by stimulative feeding, or by leaving enough white honey on the hives to keep up brood-rearing. Last year I looked after my hives to see that all queens were kept busy laying, and tried to have all brood-frames full of sealed or hatching brood by September 1. Every thing worked just as I planned. Every colony was rousing strong in bees and lots of brood and eggs.

The flow began five days later than in the four preceding years, owing to the dry season, which made the plants a few days late. Bees do not store much honey from this plant until the fields get as white as snow. My hive on scales showed the heaviest gain October 2, 3, 4, 5. The exact gain was 25 lbs. for the four days. The whole gain per hive from Sept. 15 until the last of October was 67 lbs., taking the hive on scales for a unit. The 48 colonies in my yard stored 3000 lbs. of the golden goods. I harvested about 1500 lbs. of surplus.

Some brood-frames which I weighed averaged 5 lbs. each, making 40 lbs. to the brood-chamber of 8 frames. This shows that all colonies stored about the same amount.

There were about 95 acres of white aster within reach of my bees.

Picture No. 1 was taken in my apple-orchard, showing the plants just as the flowers began to open September 17. This land was cultivated in corn in 1911. The majority of the plants came up in the fall of 1912. Last year it bloomed some, and this year it gave a full crop of bloom. This plant follows cultivation. To get a full crop a piece of land should lie at least two years after being plowed. It blooms the heaviest the second year after cultivation.

I tried saving some seed. The plants were

James S. Johnson in his apiary, Langnau, Ky.

cut just as the seed ripened, before it let loose from the plant. The hay was then hauled to the barn to be thrashed out later. An average plant has about 1000 seed-receptacles, with about 40 seeds each, making 40,000 seeds to the average plant. The seeds are attached to a downy substance which carries them in the wind to adjacent lands where they lie in the ground until the following fall when they come up and bloom the next year. Last June, when transplanting some strawberry-plants I found the young aster plants just large enough to tell what they were. They will grow some all through winter, and make good for the next year. This plant grows in out-of-the-way places also, and around fence-corners, stones, and trees, or any place where a plant can get hold. It may be seen in the bottom lands and up mountain sides as far as cultivation extends.

Picture No. 2 is a view of part of my apiary, taken Oct. 17, showing a brood-frame as the honey was being sealed. This frame came from a nucleus formed with three frames August 1. It stored 40 lbs. of the yellow goods for winter. It has a fine young queen, and her bees are hustlers. This nucleus was made of two frames of brood and one of honey. The frame of honey was placed third from the hive wall. Five frames of full sheets of foundation and about half a gallon of bees and a ripe cell were added. Back of me and to my right is the hive on scales.

Langnau, Ky.

QUEENS, LIKE HENS, SHOULD NOT BE KEPT OVER TWO YEARS

BY A. C. GILBERT

The great loss, especially to beekeepers who keep less than 75 colonies of bees in one apiary by tolerating queens that are three years old and over, I think is greatly underestimated by some. It is no great task to save enough choice queens to requeen half of the colonies in an apiary each year, and at the present time there are plenty of queen-breeders who can be depended on to furnish superior queens. When the time comes to super the colonies, the rousing big ones will be found to be headed by a young

queen every time. Since practicing introducing young queens in half of the colonies each season, we have very few but are ready for the supers when clover begins to yield. When we let them all have their own way a good many colonies amount to next to nothing for surplus, which is certainly a great loss. Suppose the apiarist had purchased queens at one dollar each for such colonies the year previous, the differences in yield might have been 100 lbs. per colony. The above has been verified in our apiary.

The first Italian queen that we introduced in our apiary of black bees was purchased of A. I. Root, I think, 32 years ago; and how anxiously I watched for the first young Italian bees to fly! What a contrast they presented to the blacks! The bees from that queen filled a super of choice honey from the second crop of clovers, besides a great plenty to winter on. I think queens might be compared to hens as to laying, as a hen after the first year lays fewer eggs each succeeding year. It is just as unprofitable to keep a hen over two years as a queen. Then, again, the condition of the brood-chamber of a prolific queen is such as to keep the queen busy occupying the cells, as the hundreds of young bees are vacating them, which has a tendency to prevent congestion in the brood-chamber, and causing more work in the supers, and more capacity, all of which lessens swarming.

Honeoye Falls, N. Y.

THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY R. F. HOLTERMANN

The article on the above subject by J. L. Byer, page 337, May 1, which has very many excellent points, impels me to say something more upon the same subject. It does not require much of a confession on Mr. Byer's part to admit that he cannot prevent swarming "with all kinds of hives." The hive, its size and construction, has a great deal to do with the swarming impulse. With an eight-frame Langstroth hive it is practically impossible to control swarming unless with much extra manipulation; in fact, the hive has to become a divisible-brood-chamber hive, part of the brood in one story and a part in another, with the consequent necessity of looking up the queen-cells in the upper story, for the risk of hatching queen-cells is too great to allow a man of common sense to take for granted there are none there. Others things being equal, the smaller the hive the greater the danger of swarming.

THE ENTRANCE.

Then the entrance to the hive may influence swarming. In going through the country I have often noticed that the entrances are about 4 inches wide and the usual depth, with the bees clustered there idle. Why? Either because the day is hot, and there is not sufficient ventilation to enable the bees to remain inside, or because there is not sufficient storage room. Such entrances were common thirty years ago, but they are neither common nor *proper* to-day.

All through the surplus-honey flow my hives have an entrance 1⅛ inches deep, the full width of the hive. With a hive of this kind, and with ample super room, if Mr. Byer can teach me how "one soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the brood-nest at every visit," I will confess I cannot. I am running about 800 colonies this season; and although I am supposed to be a man who grasps details in business, and is the bane of the employee who does not, yet I confess that, with all those bees, except in isolated cases, individuality in colonies is lost; and from week to week to compare progress in storing is almost entirely lost, unless after the first cells have been broken. I doubt its practicability in any case unless at the last of the probable flow. I give enough room for storage to cover any possibility in the direction of a flow, yet the quantity of empty space in a hive varies too much to make the comparison of remaining space a safe guide.

A well-managed colony with proper entrance and proper surplus room does not show by "lying out" that it is going to swarm, and this is particularly and most emphatically true of Carniolan bees.

Every week we look through every colony for queen-cells; and again and again, in a twelve-frame brood-chamber, after looking through ten out of twelve combs, and taking it for granted that there are no cells in the remainder, we have been mistaken; so my instruction to students is, "examine every comb." And after all that is done we have dozens of times found a queen-cell in the upper story at the bottom of a comb of solid honey—the cell just above the queen-ex-

cluder, clearly indicating that the bees carried an egg up there to occupy a cell. No, in all my journeyings and reading I have found no one to tell me to my satisfaction any way to tell if a colony has the swarming impulse unless the brood-combs are examined carefully. I can tell some colonies, but they are not kept and looked after as mine are.

GIVING ROOM IN TIME.

Then, as Mr. Byer says, the bees must be given surplus room in time; and it must be largely, at least, drawn comb. The critical period is when the colony has a nearly full brood-chamber, and before it enters (or, let me say, *accepts*) the super as a part of the hive; and let me say to the inexperienced, a comb-cell is full, so far as room is concerned, as soon as the queen deposits an egg in it.

SHADE.

Many good beekeepers are opposed to shade for the hive. Let me say unmistakably that, in my estimation, *and in the estimation of the bees,* the statement that the sun shining on a hive in summer brings the bees out earlier in the morning is absurd. It may have that effect early in the season when the leaves are not on the trees; but in summer, after warm nights, this is an absurdity; in fact, I have seen bees at work long before sunrise, and I have heard them at work from my bedroom window when scarcely daylight. But shade after the leaves come out on the apple-trees distinctly tends to non-swarming. I know one must be careful about accepting apparent results from isolated cases; but after over thirty years of extensive experience with bees I *know* shade tends to decrease the swarming impulse.

CONCLUSION.

Like Mr. Byer, I know of no absolute way of preventing swarming in the localities in which I have kept bees. There have been seasons where it would not have paid me to go through colonies every week to look for the swarming impulse; but I have to go through them once a week just the same, for I did not know this until afterward. To lose a swarm early in a good honey-flow means the loss of the season's profits from that colony. Then, too, in my estimation a colony requires looking through about once a week to see that matters are progressing right in every way. As long as we do this, foul brood is not likely to get a very serious start in an apiary. A colony will not die out from queenlessness, and other evils can be prevented, provided the examiner is awake and his mind is on what he is doing. In this phase of the work a good rule is not merely to *think* every thing is right, but to *know it is so.*

Brantford, Canada.

AN EXPERIENCE IN WORKING BEES ON SHARES

BY LE ROY LINCOLN.

Early last spring, wishing to make up for a heavy winter loss, I advertised that I would work bees on shares. A beekeeper four miles distant requested me to call. The day was quite cold, so I didn't open any of the hives. In answer to my query if the bees were in movable-frame hives he said that all of them were but five. That satisfied me, so we made an agreement to the effect that, when those five swarmed, and if any of the others should happen to cast a swarm, he was to hive them at the rate of 50 cts. per swarm, and, if possible to notify me in time, he was to do so.

On a nice warm day early in April I thought I would look the bees over to see how they were fixed for stores, etc. I took the cover off the first hive, and, whew! movable frames? Well, they were movable all right, but one had to take the whole hive to move them. The second, third, fourth, and so on all through the apiary were just the same—combs built just as bees delight in building them — crosswise, lengthwise, and everywise.

I called Mr. B., and he explained that the frames were movable, because he put them in one by one. No, he didn't use foundation. What was the use when the bees could build comb without? His father always kept bees, and never used a bit of foundation. I saw that I had gotten a "pig in a poke," and went home to think it over. On the way I had visions of streams of fifty-cent pieces leaving my pockets for those of Mr. B.

That evening I hit on a plan which I thought would hold back some of those coins and still give me a crop of honey. Early the next morning I again visited the yard and picked out the two strongest colonies and placed them side by side. The two next strongest were placed side by side about six feet from the first two, and so on throughout the apiary. Of course, this shifting caused some confusion among the

bees; but on again visiting them a week later I could see no decrease in the relative strength of the groups.

As soon as possible I raised a bunch of queens in the home yard; and when Mr. B.'s two strongest colonies showed signs of swarming I removed them to the other end of the apiary. On the old stand I placed a ten-frame hive with one frame of brood and nine of foundation, and a caged queen. On top I put two full-depth extracting-supers. In a very short time that hive was as populous as could be desired. The queen was liberated and had three frames of brood when I next looked, five days later. It was a sight for sore eyes to see the way those bees were storing honey in the supers. There were combs in the supers and foundation below. The queen would fill a frame with eggs as soon as the foundation was drawn out, so the bees *had* to put the honey in the supers. I followed this plan with the rest, and by the middle of June I had 23 good populous swarms working in the supers. By this time the first of the hives thus treated were again so populous that I repeated the operation. As I could make only 60 per cent increase according to the contract, this could be done with only five more. The rest I allowed to swarm, and put them back. Mr. B. did this, and got only eight of my half-dollars. I received a nice crop of honey and had 14 good strong colonies at the end of the season as my share.

When at work among the bees Mr. B. was constantly following me about. He did not try to conceal his surprise at my "ignorance" of certain "well-established facts." For instance, when I started to clip the queen of one of the newly formed colonies Mr. B. almost had a fit. He said clipping meant the ruin of the colony because the queen would not be permitted to take her "daily cleansing flight."

At another time, shortly after I had returned home from a visit to the yard, he called me up on the telephone and wanted to know if I could come down the next morning, as three swarms were going to issue. I asked which ones, and he replied Nos. 12, 15, and 22. Looking in my record-book I found they were all new colonies. In fact, No. 22 had but five frames of brood. I told him there must be some mistake; but he said he was positive, because he had seen drones flying in front of those hives for the first time, and surely I "knew that within 48 hours from the time the first drone is seen flying from a hive, that hive will swarm." I confessed my "ignorance," and said I would take a chance on their not swarming, and Mr. B., disgusted, hung up the receiver. Is it necessary to state that Mr. B. never saw a copy of GLEANINGS nor any other bee-paper in his life? I am sure the beekeeping brethren will appreciate this very simple method of determining(?) when a colony is going to swarm.

Worcester, N. Y.

[Your plan is all right, except that in some cases it may result in the killing of queens by reason of confusion resulting from the transposing of the colonies. But this will rarely occur when the bees are busy in the fields or are preparing to swarm. Ordinarily we should say the plan would be workable.—ED.]

SHOOTING DOWN SWARMS

BY ALFRED CARLING

Some time ago the editor said that the man who could show how to take a swarm out of a high tree without climbing it deserved a gold medal, or words to that effect. Now, as I have not seen any one claiming the medal I will try to get it.

My yard is located in a narrow canyon with tall live-oaks on the hillsides. Some swarms will fly high, and cluster away out on the swaying branches where climbing would be out of the question. I spread a large canvas on the ground directly under the swarm, and put a bucket of water with a big brush handy. I then take my 44 Winchester and shoot off the limb that supports the cluster. When it comes tumbling down on the canvas I take the brush and give the bees a good sprinkling with water. Then with a dustpan I shovel part of them into the hive, and the rest will scamper in like a flock of wet sheep. When water is not handy I roll up the canvas and dump them into the hive and put the canvas over like a tent.

On days when the mercury is trying to crawl out at the top of the tube the bees are likely to scatter in the air as the limb breaks off; but they will nearly always settle a little lower down, and then I repeat the operation till they are low enough to be reached by a 30-foot pole. Again, on hot and still days I have had to wait till the

sun set to prevent the bees from scattering. It gets cool here as soon as the sun sinks behind the mountains.

After the swarm has been shot down once, there seems to be no danger of absconding. When the foliage is so thick that the branch to be cut off can not be seen I take the shotgun, loaded with coarse shot, and clear out all the rubbish in the way. A shotgun loaded with coarse shot will, in many cases, bring down the cluster without the use of the rifle. After the brush is cleared out so I can see the limb the cluster hangs on, I send a bullet in the center of the limb, then shoot on each side of the first bullet so the bullets will strike about two inches apart. This will cut very large limbs.

Once in a while a swarm will cluster in a crotch or on the trunk of a tall tree. I then shoot coarse shot a few inches above the cluster. Fragments of bark and the powder smoke will invariably make them move, and I keep on shooting above them until they are on a convenient place for either hiving or cutting the limb with the rifle. I remember one swarm that had settled very high on a live-oak tree. When I commenced to clear off the branches with goose-shot charges the cluster tumbled down to the next limb repeatedly till the whole tree looked like a toboggan slide. If the limb is thick it will take three or four bullets to cut it off; but generally one or two are enough, as the weight of the cluster helps very much in breaking the limb.

My bees are wild ones caught in the hills. They seem to be a mixture of all races. Only a few are black. They are very savage at times. I have had a handful of them meet me forty rods from the yard and sting furiously. When hiving a swarm of this disposition during a hot day I dump the whole swarm that has been shot down into a big bucket partly filled with water; shake them up a little; dump bees and water in front of the hive on an extra bottom-board, and it seems to take both the fight and the wanderlust out of them.

Paso Robles, Cal.

[The only objection to your plan is that there is only one man in a hundred thousand who is enough of a marksman to cut a limb with a rifle bullet. Some years ago a taxidermist friend of ours desired to get an oriole's nest overhanging a body of water. As we had been out shooting squirrels we volunteered the suggestion that we might cut the twig that held the nest. The first shot brought it down, greatly to the surprise of ourself and the taxidermist. We then tried to cut off other limbs in the same way, but failed every time. We concluded that our first shot was born of inspiration or luck.

Some have reported shooting into swarms with a shotgun, but in most cases but little has been accomplished, and the result has been that a great many bees have been killed. We have been "mad" enough to use a shotgun many a time; for there is nothing in all bee culture that is more annoying than for a fine swarm to settle upon an inaccessible spot 40 or 50 feet above ground, especially when you are busy with other work.—Ed.]

DOES BEEKEEPING PAY BETTER THAN FARMING?

BY DR. C. C. MILLER

An Indiana correspondent writes:

"I have the 'bee fever' bad, and would enjoy beekeeping; but as I have a good chance at farming, and as this is not a good country for bees, I am afraid to give up farming. The white clover sometimes fails; but there is always a fall flow. If one man gives his entire time to bees in two yards, from 100 to 150 in each, how much per colony could be expected one year with another?"

The easiest way to answer your question would be to say, "I don't know." It would be the truth too. Yet to so many the same questions are occurring that it may be worth while to talk a little about them. One reason that no clear-cut definite answer can be given is that localities differ so much. It is possible to find a locality specially adapted for some line of farming, but with little pasturage for bees. In such a place, of course, the average person would choose farming. In a place below the average for farming purposes, yet rich in bee pasturage, the case would be different.

Of still greater importance is the difference in people. There is such a thing as special talents. A man who cannot tell one tune from another is not likely to make a brilliant success as an operatic singer. That almost any one can make a living at farming is proven by the many who do make a living at it. Comparatively few are making a living at beekeeping, from which it would seem not so very unreasonable to conclude that few can do so.

Taking your question, "Does beekeeping alone pay better than farming?" it may be not very wide of the mark to say that while out of an average bunch of a hundred men each one may be able to make a living at farming, some a very poor living, and others a good deal more than a living, yet not more than one out of the lot could make a living at beekeeping alone.

The important question for you to decide is whether you are that one in the hundred. Perhaps the first and greatest qualification for the business is a great and abiding love for it. Your true beekeeper is so enamored of the business that he would rather make a bare living at it than to make a fortune at farming. And that very fact makes it possible that he may make more money as a beekeeper than as a farmer.

So you see the question depends upon what you are yourself. The safe way for you to find out is to feel your way. Don't be in a hurry about burning your bridges behind you, but hold on to farming until you have gradually grown into beekeeping on the side to such an extent that you can feel safe in dropping every thing else without asking advice from any one else about it.

Your question as to what may be expected from two yards, each containing from 100 to 150 colonies each, is again one that can not be answered by definite figures in a few words. In some locations 150 colonies in one apiary would yield no surplus whatever, for the field would yield no more than the bees would need for their own use. Likely enough, in most places more surplus could be obtained from 100 colonies than from 150.

From what you say in a part of your letter that is not printed, you are evidently impressed by the fact that last year from 72 colonies, spring count, I averaged a little more than 266 sections per colony. But please don't understand that getting 266 sections per colony has become a fixed habit with me. So far as I know, that's the world's record for as many as 72 colonies, and I reached it only once in the past 50 years. (Don't make the mistake, either, of calling it, as some have done, 266 *pounds*. If we call 12 sections 11 pounds, it will be about 244 pounds.) And it's not very likely I'll reach it again in the next 50 years. I am more likely to have years of dead failure. In some locations you will do well if you average 30 pounds of comb honey per colony, or 45 of extracted. In others you may get twice as much.

But there's something else to be figured in, and it figures big, big. It's the extra amount beekeeping puts into your life, provided there's the stuff in you for a true beekeeper. Compare your life as a true beekeeper with the life of a man who stays cooped up in a city office and accumulates his thousands. Living close to nature in the pure outdoor air, with wholesome exercise, your span of life is likely to be 50 per cent more than his. Then while he is looking forward to the day when he can retire from business and enjoy life—which time he mostly never reaches—you are having your fun right along with your work. So far as I am capable of judging in such a matter, if I were starting over again I wouldn't swap my beekeeper's life for that of John D. Rockefeller amassing his millions.

Marengo, Ill.

SWARMS FROM DISEASED COLONIES NOT RARE

BY E. G. CARR
Deputy to the State Entomologist in Bee Inspection

Deputy Stine of Ohio, page 822, Nov. 15, 1913, mentions the occurrence of swarms from colonies affected with American foul brood, and asks whether this is rare. In New Jersey this frequently occurs, both in the case of American and European foul brood, and it is evidently the only reason bees have not been completely wiped out in some parts of the State.

Both forms of foul brood in this locality affect different colonies in varying degrees, perhaps depending on the vigor of the stock, coupled with the prosperity of the season.

A colony only slightly affected with foul brood before the swarming season will usually cast a swarm if other conditions are favorable. This swarm, hived after the old plan, in an empty box or keg, uses up its infected honey in comb-building, and is likely to pass that season healthy, only to be infected the next spring by robbing the parent colony which has by this time become so weakened by disease as to become a prey to robbers, and thus the cycle is completed.

THE DANGER IN GIVING THE BEES TOO MUCH CREDIT AS POLLENIZERS.

It would seem that we as beekeepers are in danger of defeating our plans by claim-

ing more for the bees as pollenizers than the facts will warrant—not that bees are not *necessary in some cases,* but it must be admitted that there are cases and seasons when bees are absolutely not needed to insure good crops of fruit; but as it is impossible to foretell the seasons when the wild pollenizers will be scarce, and the weather unfavorable for their flight, it is necessary to keep bees as an *insurance,* and this should be dwelt upon when presenting the subject.

In regard to whether bees or other pollen-carriers are needed to insure a crop of grapes, page 82, if the editor will stop in some greenhouse where grapes are grown under glass, and ask the attendant how he secures fertilization of the blossoms, he will find that grape pollen floats in the air, as does corn pollen, and no carrier except the air is needed.

New Egypt, N. J.

[It is true, as our correspondent says, that bees are not necessary in the work of pollinating *all* kinds of plants or shrubbery. He is also probably correct in saying that grapevines are very largely if not altogether self-pollinating. But this does not prove that bees will not be of considerable assistance some seasons. On the other hand, evidence is piling up more and more, showing they are a positive necessity in pollinating fruit-trees of all kinds. See what the Repp Brothers have to say on this subject in the May 1st issue.—ED.]

TWENTY YEARS AMONG GRAPES

BY FRED COLE

I have made many observations in the Lake Keuka grape-belt, where there are hundreds of acres of grapes within the flight of bees from a yard. As to whether bees bite the skins of grapes that have not been previously bitten by birds or some other insect, I would offer as an argument that they do not, the fact that the Concord, which has the tenderest skin of any grape of which I have any knowledge, but which is a large grape, and which the birds do not attempt to eat, are never visited by the bees except when the grapes become cracked in handling during picking, while on the other hand the Delaware, which is a small grape that the birds eat more or less, but which contains a much thicker skin than the Concord, is visited by the bees, and they may be found eating away the skin where the birds have injured them. I could never find where the bees eat into the skins of even the tenderest-skinned varieties where the birds had not first been.

In regard to the bee as an agent in cross-pollenizing the grape, I would say that in working in the vineyards while they are in bloom I have seldom seen a bee on the blossoms—not a dozen times in my life, I think, and I have been in vineyards more or less for twenty years.

There are quite a few bees kept in this section. There is a yard of about 80 colonies one mile and a half or two miles north of me, and I have a yard myself of twenty colonies, surrounded on three sides by vineyards.

Pulteney, N. Y.

ANNUAL MEETING OF THE EASTERN NEW YORK BEEKEEPERS' ASSOCIATION

BY S. DAVENPORT, SEC.

The sixth annual convention of the Eastern New York Beekeepers' Association was held Dec. 16, 1913, at the City Hall, Albany, The president, W. D. Wright, presided. There was a much larger attendance than at the annual meeting in 1912, and deep interest was manifested throughout both sessions.

Following the reading of the minutes of the previous meeting, and the secretary's annual report, the president stated that the treasurer, Mr. A. Kingman, having retired from the beekeeping business, had sent in his resignation. The treasurer's report showed a handsome balance in the treasury. The president delivered his annual address, covering a review of the season for honey production, the current prices of honey at retail and wholesale, and other topics of interest.

The secretary, having served in that capacity for several years, expressed a desire to be relieved from the office. With the retirement from office of the treasurer and the secretary, the annual election of the board of officers stood as follows:

President, W. D. Wright, Altamont; 1st

Vice-president, S.Davenport, Indian Fields; 2d Vice-president, C. W. Hays, Brookview; Secretary, I. V. Labdell, Troy; Treasurer, I. J. Stringham, New York City.

Erl A. Bates, M. D., chairman of the Joint Horticultural Commission, and National President of the Grand International Council of the United States, was present at the afternoon session, and was introduced by the president. Dr. Bates made a statement of the objects of the Horticultural Commission, of the necessity for it, and of establishing a home-building for horticulturists and beekeepers at the State fairgrounds at Syracuse. He suggested the sending of two delegates to the proposed horticultural meeting in January, to be held at Albany, to consider jointly the proposition.

The president was authorized to appoint the two delegates proposed. By a later motion the president was elected as one of the delegates, and he appointed I. V. Labdell as his associate delegate.

The convention was favored with the attendance of Prof. Allen Latham, of Norwich, Ct., who was introduced by the president, and addressed the meeting on self-ventilating hives and honey-houses. His address was interesting, suggesting many details of observation, which controverted some popular ideas of beekeepers.

Dr. G. G. Atwood, of the State Agricultural Department, was introduced, and gave an address on the improper spraying of fruit-trees in blossom as affecting the interests of beekeepers, and also on the spraying of obnoxious weeds for their eradication. He also referred to and described the State Agricultural Department's display of honey at the Chicago Land Show.

Rev. I. V. Labdell, of Troy, being announced on the program, addressed the meeting on his subject, "A living and more from bees." It was an exhaustive, interesting, and instructive discourse on the practical working of the subject.

W. D. West, of Middleburgh, State Bee Inspector, discussed his subject, "The wintering of bees," giving very full directions for caring for the bees during the dormant season by different methods.

A vote of thanks was extended to Prof. Allen Latham for his attendance and able address. He was elected an honorary member of the association.

Mr. Labdell made extended remarks on making greater efforts to advertise honey and create a demand for it, and offered some suggestions for that purpose.

But one question appeared in the question-box, in answer to which Chas. Stewart, of Sammonsville, State Bee Inspector, gave directions for protecting bees against the depredations of skunks.

The influence and attendance of this, the sixth annual convention of the association, were very encouraging and satisfactory.

The president reported that the 40 dozen nature-study school tablets, illustrating the honey-bee, and advertising honey, ordered of the New York State Beekeepers' Association, and paid for by him, had been so damaged by water in transit or in storage that they were entirely useless, and had been destroyed. He was authorized to draw on the treasurer for whatever amount he was unable to collect in reclamation for the damage and loss of these goods.

At this meeting the members present paid their annual dues, and much other business pertaining to the working of the association was transacted.

SOME PRACTICAL EXPERIENCES IN CATCHING STRAY SWARMS

BY J. M. KINZIE

If there is any thing that boys like it is climbing trees, and just such fun as comes from getting the swarms the trees furnish. My boys in California have built up an apiary of over 200 hives this way. One of them has bought a 35-horse-power automobile to haul his bees back and forth. He took off the back seat and has a kind of frame that he puts on, and is thus able to haul 20 hives at a time. I would rather have my boys engaged in some such sport than hanging around the saloon.

CATCHING STRAY SWARMS OF BEES.

I have often heard people make the remark, "My! I should like to have a hive of bees if they did not cost so much." In this article I propose to tell how to get one or more stands without much cost. In most localities there are more or less swarms that go away every year. Some of them come from hives of bees; but the most of them come from bees that are in trees in the woods or large apple-trees. The way we do it is as follows:

We make boxes and put two to four frames in them, with starters of brood foundation one or more inches wide. We prefer to have the starters one inch wide, as then there is no danger of their melting down from the heat of the sun, as sometimes happens to hives having full sheets of foundation. We then take these boxes and put them in apple-trees, or trees along the roadsides, having first obtained permission of the owner to do so. We set the boxes on a limb and tie them with strings. The boxes have an entrance like that of a real hive, and we make several half-inch holes in the ends, covering these over with wire cloth. We prefer to set the entrance facing the south or east, and to have old frames that have the scent of bees on them. We start out with a load of these boxes, and keep an account in a book of the place where each one is set. The boxes are numbered from 1 up. One year we got 30 swarms in this way, and 5 in one tree. I might say that we had over 70 boxes out.

In California last year one of my sons caught 9 swarms in this way, and he found 5 more in a ledge of a rock, a distance of 150 feet inside. Some of these swarms were so far back from the face of the rock that he had to make a knife with a long handle to reach in to cut out the comb. This year they are figuring on getting 200. As the country becomes cleared up, and the trees cut down, it is evident that there are not so many holes in the trees for these stray swarms to take possession of. Out of the dozens of swarms that we have caught in the past eight years, only one has developed foul brood.

Rochester, Mich.

SEPARATORS USED ONLY WHILE SECTIONS ARE BEING FINISHED

BY OTTO A. PARK

In the A B C and X Y Z of Bee Culture I read that separators may be omitted if common beeway sections are used, no wider than the brood-frame—1⅜ inches from center to center, with full sheets of foundation fastened to all four sides of the sections. Combs would be built nearly as straight as when separators are used; but beeway sections only 1⅜ inches thick would not hold a pound of honey; so it was up to me to have some supers built with section-holders to be self-spacing, and to have sections made 1⅝ inches wide on the long side, and 1⅜ on the short or narrow side, the same being only ⅛ cut out of each side. When two sections came together it would leave a beeway, and at the same time have some protection for the comb when shipped. In order to use them I had to put one fence separator in the super first; then the eight section-holders, with four sections in a holder. This super was far ahead of any thing I could find for it had a great many advantages over the old. The bees would enter them at once, and there was no need of any separators until the combs were three-fourths drawn out. Then one of the section-holders was removed from the super, the remaining holders spread apart, and a separator dropped in between each holder, super springs being put in to hold them together.

It will be seen that, by the above plan, the bees have no separators to begin with, and this is why I could get combs built so readily. If baits were used they were put one in each holder. When putting in the separators the holder that was taken out to make room for the separators was used for bait in the next empty super that was usually put on at that time. If they were not used as baits they were left in the holders; and when there was enough to fill another super it was given to a colony that could use it.

If I didn't use full sheets of foundation, and wanted the bees to build combs full at the bottom of the sections I would turn the holders upside down, before the combs were capped over too near the bottom. Every one knows that sections are filled out much fuller at the top than at the bottom; and this turning the sections bottom side up was just what was needed to fill the sections out full at the bottom.

I will admit that I have not tested this plan as much as I should like, the reason being that, at the time I was raising comb honey, I could get only 12 cts. a pound, and could get that for my extracted. Last season I got 15 cts. per lb. Would it pay me to go to raising comb honey again? It brought 16 cts. per lb. last season.

Birmingham, Mich.

[With a difference of only one cent between comb and extracted it would surely pay you to keep on producing extracted honey.

It is just a question in our minds whether the gain in the time the bees entered the separatorless supers would make up for the extra labor involved in going through the yard to put in the separators later on.—ED.]

Heads of Grain from Different Fields

THE BACKLOT BUZZER

The size of the army, when robbing is going on, and the way the little sisters show a disposition to defend their homes on a rainy day, kind o' makes a fellow feel skeptical about this universal-peace and equal-suffrage problem.

Good Wintering Not the Case Around Lysander, N. Y.

In the issue for April 15, I note that bees, taken the country over, wintered very well. I can't understand this, for it was not so around here. We had about as hard a winter as I ever saw here for bees. At one yard of 50 colonies, well packed in sheds, in the southeast side of a big swamp, where northwest winds get at them, I lost nearly half of them. The rest are weak, with the exception of 12 colonies. Nearly all of those that died appeared to have done so with plenty of honey in the hives. In some cases there was honey all around the cluster. I never lost bees like this before. My man who has charge of this yard when I am in Florida says it was 20 below zero twice, with snow on the ground around the hives and the wind blowing a gale some of the time, so this might account for it.

My bees here at home, outdoors and in the cellar, did not winter quite as well as they usually do. I lost only a few, and those were mostly nuclei in the cellar. Two-thirds of my colonies were out of doors the past winter—the most I ever had out. I think a cellar is the best place for bees in this locality, take it one winter with another. It rarely goes as low as 20 below zero, and we seldom have one week of zero weather at one time; but we do have severe fierce winds and sudden changes, lots of snow usually, but did not have as much as usual the past winter.

EDW. A. REDDOUT

Lysander, N. Y., May 1.

Queens that Lay 6000 Eggs in a Day; the Sagging of Comb Foundation and Securing Perfect Combs

In the A B C and X Y Z of Bee Culture I note that A. C. Miller speaks of queens that will lay 6000 eggs per day. Has any one any such queens for sale? and what do they cost?

For several years I have been much interested in the securing of perfect combs in the brood-nest. I used a lot of the Danzenbaker hives, and tried all the methods recommended by Mr. Danzenbaker; but the bees refuse to obey his instructions.

Now, when I put a sheet of foundation into a wired frame it seems to me that, if I am to get a perfect comb, the sheet should entirely fill the frame, and then it would be attached at all four sides. In regard to the foundation sagging, does it sag more on the wires, or do the wires stretch?

Why is it that the foundation on the market is cut so much smaller than the frames? I think that, if it comes nearer to the bottom-bar, there would be a better chance to get perfect combs.

LEWIS P. FARWELL.

North Charlestown, N. H., April 30.

[About queens laying 6000 eggs a day, we would say that Mr. Miller merely stated the maximum number that a queen *could* lay in a day. The average queen probably does not lay more than 300 or 400 in a day; and in the height of the season not much over 1000 eggs as a regular day's job; but if she is given an empty comb, cells all cleaned out, she may lay 3000 or even 6000 eggs in a day.

You will not have very much difficulty in getting perfect combs with the Danzenbaker hives. All that is necessary is to reverse the combs when some honey is coming in, and by that means some combs will be filled down to the bottom-bar. It is not practicable to put in sheets of foundation large enough to reach clear down to the bottom-bar unless vertical wiring is used or wooden splints. Some do not succeed with the latter, and the former is not practicable with thick-top frames. When the bees draw out a sheet of foundation it is inclined to stretch downward; therefore it is necessary to have the sheets cut of such a size that they will be about ¼ inch, when inserted, less in width than the inside depth of the frame.—ED.]

Not Bee Paralysis but Starvation

I just had my first case of bee paralysis, and, of course, I was a very good doctor and quickly diagnosed the case as paralysis. I was going to try the Poppleton cure, as it was on one of my largest colonies of bees, and I wanted to do something very quickly. They were coming out of the entrance of the hive at about the rate of ten to fifteen per minute, and it seemed that they were increasing. They began to show symptoms about 4 o'clock in the afternoon, and by next morning I had something like one-half to a gallon of bees dead in my hive. I decided to isolate this hive immediately, so I took it up and moved it about a mile from the other apiary and opened it up, and it looked to be about a good-sized swarm of bees on the bottom-board, and, lo and be-

hold! I discovered that there was not a drop of honey in the comb, and practically all the brood had hatched out with the exception of two or three small patches. I gave them some sugar syrup immediately, and they went at it as pigs would swill, and I found that my paralysis was nothing more nor less than starvation. I also realized then that the queen was a very prolific one, and the swarm an unusually large one. She had used up all the stores in the hive in raising young brood, and we had just had three days of very cold rainy weather which brought about the starvation.

Kinston, N. C., April 21. J. W. BLACK.

What Made the Paint Come off the Hives? What Kind of Paint to Use

I do not want to be understood as being against unpainted hives or painted hives, as I am only a beginner; but last fall I fed my bees on sugar syrup from October 1 until it was too cold to feed them, and they went into winter quarters with their hives running over with bees. In preparing them for winter I used some heavy wrapping paper over the hives and then wrapped around this a single ply of roofing paper after putting on top of my hives a super filled with planer shavings. I made one nice complete job of wrapping over the super and all. When I took off this paper this spring the paint had literally left the wood in patches from the size of a quarter up to the size of a silver dollar. They all looked as if they had been through a fire with the exception that they showed no char on the outside.

I had two colonies of ordinary size in the Danzenbaker hive. These showed no signs of blister, but the others are in very bad order. I am going to transfer these frames to other hives and scrape them and repaint them. Is there any way I could prevent this blistering next fall, and also wrap my hives so that they will be warm?

Kinston, N. C., April 21. J. W. BLACK.

[It is important to have the hives thoroughly dry before painting. If the lumber is a little green at the time of putting on the priming coat, the paint would easily flake off later; but this was evidently not your trouble, as your Danzenbaker hives, painted presumably with the same paint, did not flake. Your paint did not have enough dryer in it or you put your wrapping on the hives when the paint was too green. Unless the paint were thoroughly dry (and it would not be dry unless some dryer were used) the paper wrapping would take off the paint in patches just as you describe.

We advise a pure white-lead and linseed-oil paint. Some of the ready prepared paints on the market have neither lead nor zinc in them; and instead of linseed oil they have fish oil. Such paint is dear at any price.—ED.]

Five-banded Bees Immune to American Foul Brood

I see Mr. J. E. Crane is after the five-banded Italians. My brother-in-law (John Talbert) had 100 colonies, spring count, 1907, of three-banded Italians. They became diseased with American foul brood that summer, and in the spring of 1908 there were only 52 colonies left. I moved them down on the river near Mr. Nathan Sams, who had 80 or 90 colonies of five-banded Italians. At that time my home yard was on one side of him, and the Talbert bees on the other. Both yards had foul brood, and they were a good grade of three-banded Italians. The farmers were losing their bees on all sides of him. I was talking to Mr. Sams last fall, and he said he had never had a case of American foul brood.

In 1910 I commenced to raise five-banded Italian queens, and every time a colony had to be treated for foul brood I requeened with a five-banded queen, and last fall I went into winter quarters with only two cases of American foul brood. I like five-banded bees because they brood up early in the spring, and get ready for the honey-flow when the second cutting of alfalfa blooms.

Freewater, Oregon. C. A. MCCARTY

Requeening without Dequeening

The "basic law" for requeening without dequeening, which Mr. A. C. Miller is in search of, Dec. 1, 1913, page 850, will probably be found in Mr. G. M. Doolittle's writings of some twenty years ago. Mr. Doolittle found that, on giving all colonies a queen-cell at the close of the white-honey harvest, about a third were accepted each year. He concluded from this that queens in the small hives he used at that time began to fail at about the third year, and that a queen-cell would be accepted by all colonies headed by a failing queen, even though they had not themselves made preparation to supersede her.

I believe Mr. Doolittle has found that, in the larger hive he now uses, the queen usually begins to fail in about two years. Mr. J. B. Merwin, in the article following Mr. Miller's, brings out the same point where he says, page 852, "This plan will work well on all queens two years old or over," and that is probably the "basic law"—"a queen-cell will be accepted by any colony with a failing queen."

Mr. Merwin may greatly simplify his work by using a ripe or nearly ripe queen-cell. I believe, though, that when you wish to requeen a colony having a vigorous but undesirable queen, the "basic law" will require you to do it in the good old way.

Had I any desire to "jab" Mr. Miller or the editor I would suggest that they procure a small work entitled "Scientific Queen-rearing," by one G. M. Doolittle, in which they may find the plan which the editor says, page 852, is "worth pasting in the hat."

Audubon, Iowa, Dec. 15. E. M. COLE.

Bees Steal Eggs from Another Hive to Raise Queen

There have been many articles written the last few years, showing that bees sometimes move eggs from one hive to another. I think we had the most positive proof to that effect of any that I have seen. Last summer Mr. Frank C. Pellett, our State bee-inspector, and a friend with him, were at our place. After inquiring about the bees I told him that all seemed well but one colony, and we went to examine it. We commenced on one side, and took out the frames to the center, and found no brood nor eggs in the hive, nor any queen; but we found two queen-cells—one sealed and the other about ready to seal, and that was all the brood there was in the hive—no queen. It seems to me that this could not have occurred unless the bees had transferred eggs from some other hive. In a few weeks I examined it again and found two frames pretty well filled with brood and eggs, and as fine a young yellow queen as I ever saw.

Bedford, Iowa, Feb. 10. J. H. FITCH.

Are Fumigated Combs Objectionable to Bees?

I have accidentally made a discovery with my bees that leads me to believe that disinfecting old combs with bisulphide of carbon to destroy wax moths makes the combs unfit for use again for brood-combs. I have never seen any thing in GLEANINGS about this chemical doing any harm to the combs; but, as I said above, I am now of the opinion that it does.

Seymour, Ct., Feb. 5. P. J. HOEVEL.

[We have fumigated considerably with carbon bisulphide, and have never noticed any bad effects afterward, although, since our combs thus fumigated are very seldom given the bees again any way, we can not say for sure. If any of our readers have had any opportunity to test this matter, we should be glad to hear from them.—ED.]

A. I. Root **OUR HOMES** Editor

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from evil.—JOHN 17:15.

As thou, Father, art in me, and I in thee, that they also may be one in us; that the world may believe that thou hast sent me.—JOHN 17:21.

On page 275 a good friend suggests doubling up the country churches, and asks me if I justified the existence of sects; and on the next page another friend tells us how a good live pastor got his church so filled that there was not standing room. He visited *eighty saloons* in the town on Sunday and Sunday night, and found *only six* paying any attention whatever to the Sunday-closing law. Again, on page 285 Dr. Miller discusses having so many denominations. As I was down in Florida I did not see it until it came out in print; and you may be sure I had a big laugh at his expression, "us younger ones." Is it not a pretty good joke from a man "eighty-three years young"? Well, I think I can pretty well agree with my good old friend Dr. Miller. If we could get together and talk it over I assure you we should not be very far apart in our opinions and suggestions. Now, right here comes in a kind word from a good friend about "so many denominations."

Mr. A. I. Root:—On page 275 some one asked you a few very pointed and consistent questions. I have not seen any answer as yet. I should like to say a word or two on this subject, as it is a question that lies very near my heart.

1. Is the church of Christ celestial only, or is it a part of the world?—Matt. 16:13-19. This very clearly locates Christ's church on this earth, and I know of no scripture that changes its name in heaven. Wherever that may be is of little consequence to the member of Christ's church.

2. Divisions certainly are carnal, or else our Savior uttered a very meaningless prayer in John 17 and Paul in I. Corinthians 1:10.

3. Do you justify the existence of sects? This is answered in the quotation given above in our Savior's prayer for unity. Then the question is, "Does Christ justify the existence of sects? From my limited knowledge of the New Testament I have no hesitancy in saying it is sinful.

I heartily endorse what a brother has to say on page 285. I believe he has about the correct notion of it. When we get down to "brass tacks," and quit quibbling over tweedle-dee and tweedle-dum, and *do* what the Lord says, we shall be seeking a basis on which all Christendom can unite. Let us consign to the flames all articles of faith or rules of practice or any other man-made creed, and take as our rule of faith and practice the New Testament. When we speak where the Bible speaks and are silent when the Bible is silent, we shall be at a point where all Christendom will be a united church of our Lord Jesus Christ.

ALBERT HOLLINGSWORTH.

Terre Haute, Ind., April 25.

While I may not be prepared just now to indorse *all* of the above, I wish to add emphasis to the concluding sentence: "When we speak where the Bible speaks, and keep silent when the Bible is silent, we shall be at a point where all Christendom will be a church of the Lord Jesus Christ."

Dr. Miller speaks of having so many denominations just because of minor unimportant differences.* While grave questions confront us that must be taken care of at once, not only ministers of the gospel, but good Christian people stop to fuss and bother and argue about things that seem to me to be pure nonsense. That expression does not half tell it. If you will excuse slang I would put it this way: It seems just *awful* that good, educated people should waste their time and energy on things that are but little more than "tom-foolery." After I read "Pollyanna" some of the good friends in Medina told me I should read a new book entitled, I think, "The Inside of the Cup." Now, while there is a lot that is good in the book, the author, without the least bit of reason, drags into it the dispute of the doctrine of the immaculate conception of Jesus. I threw the book down in disgust and said, "What good can come by taking up a question like this, that has no possible bearing on the needs of the day?" There is enough tendency already, God knows, to question the truthfulness of the Bible as God's holy word. Suppose somebody has been brought into the church, prayer-meeting, or Sunday-school; and suppose, further, he has not given these matters much attention; what possible benefit could *he* get, spiritually or in any other way, by listening to this silly criticism? If that is a part of the "new higher criticism," I wish to know no more of it.

I now wish to give one more illustration about wasting our time and energy on a matter that cannot possibly benefit the world in any way, as I look at it. Some very good people are wasting their energy, and I do not know but a good part of their lives, toward what they call the importance of changing Sunday to Saturday. Such a course, as I see it, not only accomplishes

* It just now occurs to me that Dr. Miller is a *Presbyterian*—at least that is my recollection. Well, Mr. Calvert has just returned from the State conference of *Congregational* churches, and he says the matter came up there in regard to doubling up denominations. In fact, there has been talk for some years past of uniting the Congregationalists, Presbyterians, and the United Brethren. I think one thing that blocked the way was a disagreement as to what the new body should be *called*. Well, here comes in the joke on Dr. Miller. Mr. Calvert says the conference reported there are twelve kinds of Presbyterians. My good friend Miller, hadn't you Presbyterians better start the ball rolling by first reducing the *number* and the *kind of Presbyterians*? Couldn't you possibly coax them down to an even half-dozen?

nothing, but it blocks the way, mixes things up, handicaps themselves and everybody else they run against, without having accomplished any thing. I have wondered again and again how it was possible in this day and age of the world, when superstition and folly are fast giving way to good common sense and righteousness, that these people should *continue* in their queer notions. While I write, our people here in Ohio are discussing the adoption of eastern (New York) time in place of the present central (Chicago) time. I confess I think it will be an advantage to do away with having an hour's difference between Cleveland (and Medina) and New York; but the papers are full of what I cannot help looking at as silly talk about giving the people "more daylight" by changing the clock an hour ahead. I say, and have said repeatedly, change the clocks by all means, if it seems best; but do not by any means change the hour of getting up and going to bed, simply because the *clocks* have been changed. Neither is there any need of changing the time of starting and stopping our factories, the time of school, or time of going to church, prayer-meeting, etc. The time of starting business and closing it has been settled by universal consent largely, according to the rising and setting of the sun. Why in the world should we make *any* changes simply because the *clocks* are changed? When old Sol decides to change his time of rising in the morning and of going down at night, then we may consider a change in our habits.

I think no one will doubt for a minute that the saloons and the whole liquor traffic might have been banished long, long ago, had our churches and their respective pastors been united as they are getting to be, just now. The awakening to the evils of intemperance has been a long and slow process; but, may God be praised, it seems now fairly well in sight; and the work of driving them out, I verily believe, will unite our different denominations as nothing else has ever done.

I have alluded several times lately to the measures that are being adopted to save human life, and to alleviate sickness and suffering—the "safety first" organization. Now, if our churches, Sunday-schools, and Endeavor Societies could drop unimportant differences, and give the same attention to the children, including the grown-up children, how much might be accomplished! Let us keep the good old Bible as it is—speak when the Bible speaks, and be silent where the Bible is silent. There has been a discussion more or less for ages, perhaps, as to what becomes of us immediately after death. Do we have a period of sleep, as some claim, or are all to be received, like the thief on the cross, in "paradise this day"? Perhaps it is well enough to search the scriptures carefully and see what they tell us about it; but I would not waste much time in the matter. Shall we not use the same time and energy in taking care of "thieves" who have not gone *so far* as to reach the cross? And look out for the children that are growing up, and see that they do not get into the *company* of thieves, and that there be no thief-breeding places such as saloons, etc., in your immediate neighborhood. By no means let us sit down with folded hands, as Dr. Miller puts it; but after we have gotten up and started, may God help us to use our strength and energy in fighting *real* evils—things that are a menace to bodily health as well as to spiritual growth. The dear Savior in his prayer in our opening text did not ask the great Father to take his chosen ones out of the world. He meant they should stay in the world, and that they should be "the salt of the earth;" that they should mix in with saints and sinners—*especially* the sinners. But he did pray that the Holy Spirit should keep them while in the world and protect them from all the evils surrounding them.

HORSERADISH AND CHRISTIANITY.

Perhaps, friends, you think the above a queer combination; but listen to the good brother below, who wants his name withheld:

In the April 1st number of GLEANINGS, page 277, you speak of selling horseradish, which cost 4 cts., at 10 cts. That is 150 per cent profit. If a pound of honey costs 10 cts., and sells for 25 cts., that is 150 per cent profit. Now, where can we draw the line between just and unjust gain—I mean, looking at it from the Christian standpoint? I have thought much on this subject, and have tried to look from *both* the producer's and the consumer's standpoint.

My good friend, I may have been a little careless; but did you not *also* notice the sentence, "but I tell you it took some 'bossing' to secure smooth running all the way from producer to consumer"? In the "4 cts." mentioned I did not count my time at all. Should not the man who studies and works up such a short cut have some pay in the shape of profit, for inventing the machinery, or establishing the industry? Mrs. Root has all her life "put on the brakes" to my "great discoveries," and she has often been right—they didn't pay cost. Therefore I greatly enjoyed demonstrating to her that I was making "a safe margin," and also having pleased customers. Once more,

there is a disposition all over the land to trade in "nickels" and avoid fussing with pennies. Five cents for something that costs four cents, or perhaps a little more, unless the demand is enormous (like Uneeda biscuit, say) would be risky. You see the cost of handling a five-cent deal is just as great as a 25 or 50 cent one.

BEES WANTED FOR ORANGE GROVES AS WELL AS APPLE ORCHARDS.

We clip the following from the Florida *Times-Union*. While the substance of it has appeared recently in these columns we reproduce it as showing how rapidly the general press is disseminating the truth concerning bees as pollenizers of fruit.

BEES: THEIR VALUE NOT APPRECIATED.

If the office of bees in increasing the yield from plants were fully understood, there would be many more apiaries in Florida than there are at present. It is said that encouragement of beekeeping in a certain district of Nebraska, where much alfalfa is grown, resulted in the addition of more than 200 per cent to the yield of good seed of high germinative powers in the field of that valuable legume and hay plant. We have heard of a citrus grove in South Florida which bore well for some years. Year before last some one discovered a bee-tree near this grove, cut it down, and thus dispersed its inhabitants. The following year there was almost no crop from that grove.

Not only fruit-growers but observant truckers are aware that they are much indebted to the bees. The little honey-gatherer dives into the depths of a blossom in search of nectar, and, emerging, carries off much pollen on its fuzzy coat. Within the next blossom of the same species it visits it rubs much of this pollen on the pistils, securing the fertilization of the ovules and the consequent formation of fruit. Cross-fertilization, so essential to the stamina of plants and animals, is made more certain by the visits of the bees. So well is the useful agency of the bees understood in many parts of the North that fruit-growers maintain bee colonies in their orchards—not so much for the honey, which is regarded rather as a by-product, but for the sake of increasing the yield of the trees.

If the bee is so useful in a climate so cold that the hives must be protected most of the winter, and the bees must be fed after a severe season in order to preserve them, how much more should the busy denizen of the hive be encouraged to thrive and multiply in a climate in which it can gather honey practically all the year, and in a land where fruit and vegetable growing is so great an industry? There is practically not a day in most of our years when the bee cannot find some blossom from which to gather honey—in a large part of Florida not a single day. This, therefore, should be a land of honey. Apiculture is so much easier a following in Florida than in more northerly latitudes—should be so much more remunerative—that we should have hundreds making it a livelihood.

Some fear stings; but there are breeds that are gentle in disposition, not easily aroused to attack. Experienced beekeepers often dispense with protection while working among their bees, having learned how to avoid alarming, or rousing the resentment of their charges. Apiculture does not call for a large expenditure of money to begin it, nor a large area in which to conduct it. There are instances of profitable bee colonies being maintained on house roofs in large cities. It makes no great draft upon one's time nor large drain upon one's pocketbook. Bees are, of all living creatures on the farm, the most able to take care of themselves, especially in a genial climate, and there is no more certain crop than that of the hives.

"SEED BEES."

The expression, "seed bees," caught my attention while glancing over a copy of the *Farm and Fireside*.

A POUND OF SEED BEES.

By buying bees in pound packages one is able to get a start in beekeeping at the least cost, and the system is economical for those who have lost considerably during winter or in early spring.

The middle of last April I ordered three one-pound packages of bees, each pound to be supplied with a laying queen. The price per pound for bees was $1.50, and the queens $1.25 each. These came from Fitzpatrick, Alabama. They arrived on my Wisconsin place on the 18th of April in good condition. On arrival each pound was put on four drawn-out Hoffman frames, in double-walled hives. An extracted super was put on top.

They were fed daily on a syrup composed of equal parts of sugar and water. They immediately started brood-rearing, but one of the queens turned out to be a drone-layer. The other two packages increased.

These two pounds were increased to five rousing colonies; and, besides, over 100 pounds of honey were extracted.

The expressage on these three packages was $1.20. This brought the total up to $9.40, or $1.89 per colony.

The cages were six by seven, and eight inches high. They arrived as one package, being arranged one on top of another, two inches of space between each. Each was enclosed with netting, except two sides where a board was used.

I am sure it would not have been possible to get the above results if I had used single-walled hives, because the atmospheric changes would have been felt too keenly.—*Oscar Kazmeier.*

Two important points are brought out in the above—first, that it is possible to purchase bees by the pound and have them shipped as far as from Alabama to Wisconsin, and still prove to be a profitable transaction—so much so that two pounds may increase to five and give over 100 pounds of extracted honey besides; and I am strongly impressed with the fact that young bees at the proper time in the spring may be shipped from Florida and other southern States to points here in the North so as to be a paying investment all around; and it may result in a great and growing industry.

THE "HOPE FARM MAN" OF THE RURAL NEW-YORKER, AND BEE CULTURE.

Our readers who are conversant with the *Rural New-Yorker* will be pleased to hear, I am sure, that the Hope Farm Man is getting interested in bee culture. He recently wrote the A. I. Root Co., asking some questions about the case of bees. After getting a reply from E. R. Root he writes as follows:

Mr. E. R. Root:—I am very much pleased with your letter, and thank you heartily for sending it,

This is just exactly what I wanted, and really is the most interesting article on bees that I have read in a long time. It tells me exactly what I wanted to know, while I confess that most of the articles on bees don't seem to tell me any thing at all. What you say is exceedingly interesting, and I believe you are entirely right regarding the effect of a colony of bees upon apple and peach bloom, or setting of the fruit. Our bees appear to be very happy. I have one of the redheads who thinks he is going to make a beekeeper. The bees stung him the other day, and he certainly let out a number of screams, but I think he will get over it, and I am greatly pleased to have our children take so much interest in the care of these busy little creatures. It appears that I was right in thinking that there may be lazy bees as well as lazy men. I know that the hired man generally has his off days, when, if you put him alone at some work in the hot sun, he is sure to seek the shade and think his work over with great care.

I had a colored gentleman working for me once, and I tried to tell him how careful he must be to think his work over and plan it thoroughly before taking it up, as he could accomplish ever so much more if he had it thoroughly organized. I sent him to a back field to put a bag of fertilizer on some corn. After he had been over there a long time I thought I would go over and see how things were doing. There sat Alic under a tree, looking at the bag of fertilizer. When I asked him what he was doing he said, "Well, boss, you told me to study this here work mighty careful, and I am doing just what you told me." The whole subject of beekeeping is coming upon us as a very interesting thing. I really didn't know there was so much to it, and I am glad of the chance that has enabled us to get hold of these little friends. I am greatly obliged to you for your kindness in answering the questions.

New York, May 25. H. W. COLLINGWOOD.

IS THERE NO CHANCE FOR A POOR MAN TO KEEP BEES?

My dear Mr. Root:—I worked for so-called Christians for 25 cts. a day when 16 years old, and the memory of rats crawling over my bed at night still lingers. I got up in winter at five o'clock, and hauled manure all day in the cold for 25 cts. Were it not for the stupor whisky gets the laboring classes into, conditions would have improved long ago. But what can you expect?

It makes the hot blood come to my temples when I see the extravagances of rich men who control legislatures. They foist whisky on an unsuspecting public, and then appeal for votes from that same public. Roads are being made in this State that will not last. Sewers are put through and no guards on the mouths. These men are the enemies of society, who openly boast that woman suffrage is disrupting the home. I love bees, but if we keep on destroying homes, no one but rich men can keep them.

SAMUEL B. HENDERSON.

Centerville, Ind., Oct. 20.

My good friend, I too worked for 25 cents a day riding a horse to cultivate corn; but I had a good bed because I boarded and lodged myself when I got only 25 cents. I, too, feel the hot blood come to my temples when I see rich people wasting money on their diamond necklaces, pet dogs, etc.; but may I suggest to you and others who claim there is "no chance for a poor man," that many of the great men of our day, and *very many* of the rich men of our day, started as poor boys? Now, it is the poor boys who are blessing the world. The sons and daughters of the *millionaires* are the ones to be pitied. Is it not so? I fervently thank God that he started me as a poor boy on a farm; and when Mrs. Root and I were married we had comparatively nothing; and I verily believe that, had our good parents been able to give us a thousand dollars, or ten thousand, to start a home with, it would have been a handicap instead of a blessing. I should like to ask all of our readers who agree with me in this to raise their hands; and as you drop your hands, let each and all thank God that he *was* born poor, and had to fight his way in this great busy world.

In regard to bees, where is the boy who can not scrape up money enough to buy a single colony to start with? and I believe his chances will be better with this single colony than if his father were to give him a whole apiary.

POULTRY-KEEPING IN FLORIDA.

The clipping below from the *Florida Grower* will answer a lot of questions:

POULTRY PAYS.

I cannot help replying to the man who made the statement some time ago to a northern friend that poultry did not pay in Florida. I arrived here on September 21, 1913, and on November 2 a friend set a hen for me, and the result was ten little chicks. I paid for the hen 75 cts. and 50 cts. for the eggs. On March 25, 1914, the pullets started laying, and on March 28 I sold four of the roosters at 21 cts. per pound; the four weighed seventeen pounds, for which I received $3.57. The cost of the feed for the four months had been $1, so, including the price of the hen and eggs, $1.25, and feed $1.00, I was $1.32 to the good and I still had the hens and the four pullets. The hen started laying on February 15. On April 21 I set one of the pullets, and to-day, May 11, she hatched twelve chicks from the thirteen eggs I gave her, and the old hen is sitting again also, and another one of the pullets. I will leave it to you whether poultry pays or not. G. H. N.

Davenport, Fla., May 12.

[You are certainly doing well; but you seem to have started a kind of perpetual-motion farm. But that is the way to do things, and we congratulate you upon your enterprise.—ED.]

Permit me to say that what is stated in the above is true. Any person of fair skill with poultry can do it every time. I have done it for the past seven winters, with the exception of getting the pullets to lay in March or April. We generally reach our Florida home during the first week in November, and usually leave for the North about the middle of April. If you are successful with chickens here in the North or anywhere else, you will be likely to succeed in Florida, with the tremendous advantage of having no weather in winter that will interfere with the raising of chickens. I feel sure, too, that the fireless brooder is all that is needed in Florida at *any* season of the year.

HIGH-PRESSURE GARDENING

THE IRISH COBBLER POTATO, AND THE SPORTING HABIT OF POTATOES IN GENERAL.

This spring, as usual, when I wanted some choice potatoes to plant (especially the Red Bliss Triumph), I did not find any in our locality. I would, of course, have brought home some of that kind that grew in Florida, but they would not have sprouted in so short a time after being dug. I have mentioned the seed firm of F. W. Gibbons & Co., of Boston, Mass., who grow potatoes, especially for planting in the South, by the hundreds of carloads. I wrote a friend in the employ of the firm in regard to my wants, and he sent me some very choice Triumph potatoes, and also included some Irish Cobblers. Here is what he says about the latter:

Brother Root:—The Cobblers are as early as Bliss, and heavier croppers; but they need heavier fertilizing than the late varieties, as they have to ripen their crop in two weeks less time than the late varieties. If I can get my hands on an extra-fine strain of Golden Bantam corn I will mail it. By passing along among the farmers' wagons in August one often finds a particularly fine strain of vegetable. I saw a farmer with fancy Golden Bantam last summer, but failed to take his name and address.

The Irish Cobbler is supposed to be a sport (origin unknown). It is evidently a sport, not a seedling, because the type is not fixed. You plant twenty true to name; and when you dig them you will find some have reverted to some one of the original parents, and some in a field will have blossoms of different colors. The buyer thinks he has been given mixed seed; but it is simply some tubers that reverted, and consequently the careful Aroostook farmer keeps "rogning" out the varieties in order to hold the type. Now, the type is this ugly square-shaped deep-eyed tuber with a deep cavity at the stem end, and an ugly, deep, puckered-up eye at the seed, and it very much resembles a Naval; but this type is very early, and a heavy yielder. It must have good rich soil, as it has to do its work in ten days less time than later varieties of potatoes.

EDWIN E. HARRINGTON.

Malden, Mass., May 21.

P. S.—*You owe me nothing* for this. I am now and always shall be indebted to you for so much good that I absorb from the last half of GLEANINGS.

E. E. H.

The above interested me greatly, for I have been for years watching the tendency of the different varieties of potatoes to sport. For instance, for several seasons I selected the hills of a certain variety that kept green after the others had died down. In this way I created a *late* variety from what had formerly been an early potato. In a like manner you can, by diligence, build up in a few years almost any kind of potato you want. The specimen of Irish Cobbler alluded to is a large nice potato, smooth and white, but with very deep eyes —so deep, in fact, that the potato was most ungainly-looking compared with the smooth round Triumph potatoes, as shown in the picture on page 317, April 15th issue.

In many localities, I believe, the Irish Cobbler is getting to be a great favorite as an extra-early potato.

I extract the following from the *Florida Grower* concerning the Irish Cobbler.

The Irish Cobbler is a good variety which is growing in popularity, and has the double advantage of being a very good keeper and shipper. The price of good guaranteed seed from any reputable house varies of course a little, but may be taken at an average of $1.75 a bushel, or about $4.50 a barrel.

SESAME IN THE WEST INDIES; NOT ONLY A FOOD BUT A HONEY-BEARING PLANT.

Mr. A. I. Root:—It gives me pleasure to send to you, under separate cover, some sesame. It is raw seed. I hope you will make several trials of parching so as to get the best flavor. I like it best served hot with a little white sugar. Eat and enjoy it.

My stock is down to about a quart now, so I could not fill many orders; but, all going well, I will plant in a week or so, and should have 500 lbs. in four months. Our sesame patch is alive with bees when in bloom.

Judging from the sesame letter in GLEANINGS (Mr. Thompson's) there are different varieties, to say the least. Some people who have written me from Texas describe the plant in a way that does not fit mine. Our sesame shells itself out when ripe. Pods open wide, and seed scatters at the least touch.

When you get your sesame parched just right, grind some very fine and try it in wheat-flour pancakes.

JOHN M. BREWER.

Columbia, Isle of Pines, W. I., May 12.

RAISINS BY THE TON, ETC.

Raisins are packed in great sheds, like corn in the East. One of our neighbors often has 100 or 150 tons on hand at once. We have only a small place, and our biggest raisin crop so far has been about 14 tons.

I wish every one in the country could read Our Homes. I am clipping the item on cigarettes, from New Zealand, and sending to my mother.

We have voted our whole county dry excepting Fresno and one oil town, Coalingo, and in doing so drove three roadhouses out of existence in our vicinity. We are only four miles from Fresno, and of course they catered to the tougher element of the city.

Our women take the franchise sensibly, and are, as a whole, more intelligent voters than the men. We have on overwhelmingly large Armenian, Greek, Italian, and some Mexican and other foreign population. Our district school has *14 nationalities*, while they claim *31* for Fresno. This means civic and moral as well as financial problems.

Fresno, Cal. CORA DENHAM.

CLAIMS RELATIONSHIP.

Mr. Root:—I get GLEANINGS, and think it is fine. Every man who is against the whisky traffic is my brother.

Woodville, Okla. E. L. CLIMMER.

Mr. Root:—I keep bees. I don't subscribe for GLEANINGS, but I often read it. Don't you think I ought to have a dasheen? C. C. MILLER.

Marengo, Ill., U. S. A.

HEALTH NOTES

THE HIGH COST OF LIVING—A NOVEL SUGGESTION.

We clip the following from the Cleveland *Plain Dealer:*

Germany has furnished this country a striking example of the benefits of adopting sanitary improvement, and has surprised even her own most optimistic advocates by proving that the expenditures that go for bettering community conditions not only pay by protecting health and giving comforts undreamed of to the people, but actually reduce the cost of living.

Invariably the proper paving, sewering, and supplying of water lines to communities has added to the value of the property an amount in excess of the cost of the improvements. Even sewage disposal under the present extravagantly wasteful methods in which millions of dollars' worth of fertilizers are lost, may be considered a paying investment because no city will advance commercially or exist healthfully until some provision is made for the safe solution of this big problem. In like manner the various systems of maintaining proper sanitary conditions, which are operated at an apparent loss, such as cleaning streets, oiling roads, draining swamps, and enforcing proper rules of sanitation, are actually remunerative, because property in such communities demands higher rentals, and the people avoid heavy expense due to unnecessary sickness.

Let me add to the above that we not only reduce the high cost of living by such sanitary measures, but we add also to the pleasures and enjoyment of living. The man or woman who is well nourished, has plenty of pure air, drinks only pure water, and has a sponge bath every day, enjoys life to an extent that thousands of people know nothing of.

THE AIR WE BREATHE.

A. I. Root:—Wife and I find many interesting and helpful items in GLEANINGS. That which has from time to time been written concerning a careful or proper diet, or the preservation of health thereby, is read with much interest; but there is another phase of the subject of perhaps equal importance, about which *less* has been said; and that is, the air we breathe and the way in which we perform that function. Our beneficent creator has furnished an abundant supply of pure fresh air, and yet a large part of mankind appear to place little value on it, and are apt to make very meager arrangements for maintaining its purity. The fact is, that by far the greater part of men and women only about *half* breathe—that is to say, very seldom *fill* the lungs to the bottom, but form a habit of using only the upper part of the lungs; consequently the dark or corrupt stream of venous blood, as it returns to the lungs for purification, fails to meet with the requisite amount of oxygen, and hence is not changed, but passes on, entailing extra work on the kidneys and other organs of the body, resulting in a poisoned system and the manifold discomforts of ill health. Since the introduction of modern methods of heating houses, that much dreaded disease, tuberculosis, has rapidly increased—owing, no doubt, to the lack of proper or of sufficient ventilation. Wife and I are near to our three-score and ten. Our children are all gone to try the world for themselves, and we dwell alone. We sleep in a cold room, with windows up all kinds of weather. We still maintain the youthful glow; and while our neighbors all about us have been greatly afflicted with colds and grip, we have been apparently immune. If people were less *afraid* of pure air, even if it is not always warm, and would cultivate the habit of deep breathing, it would free them from innumerable ills. Doubtless it is in accord with the will of God that we should understand and discreetly use the bountiful provision he has made for our sustenance and comfort while here below. And now "let us hear the conclusion of the whole matter. Fear God and keep his commandments, for this is the whole duty of man." Abiding in such a state we shall be willing faithfully to occupy until our Lord shall come; and whether the summons be "at midnight, at the cock-crowing, or in the morning," we shall go joyfully forth to meet him.

Barnesville, Ohio. THOMAS DERVIES.

THE PANAMA CANAL ZONE AS A "HEALTH RESORT."

We clip the following from some journal, the name of which we have lost:

After living for five or six years amid conditions which have produced such a startling reduction in the death-rate, will the men who have dug the Panama Canal be able to find any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope, says *The Journal of the American Medical Association*, that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

If it is indeed true, as we have continual reports, that our doctors are able to make such a place as the Canal Zone one of the healthiest localities in the whole world, shall we not in time be able to do the same thing in other places where people live, and bring about like conditions? May God be praised for what is being accomplished in the way of banishing preventable contagious diseases.

FROM "PRODUCER TO CONSUMER;" FROM OUR GOOD FRIEND T. GREINER.

I have finally come to it, namely, bought a hand mill, and have begun to eat my "graham-flour porridge" for breakfast. When you have a good mill (mine cost $3.35), and take good wheat, and clean it by hand to get the cockle and chess out of it, and then wash it and afterward thoroughly dry it, you get a nice clean product, and a good breakfast food at nominal cost. We cook it after recipes given by Terry and in GLEANINGS, and eat it with about its own bulk of apple sauce and a generous quantity of real Jersey cream. Probably it tastes good eaten with honey. But people who have never tried it can hardly appreciate how good apple sauce and good cream go with any kind of such breakfast food. Apple sauce and cream (not milk), half and half, alone make a dish fit for a king. But almost all cereals can be made to taste good when eaten with real cream or with good honey. My boys took quite a fancy at once to the home-made graham breakfast dish, and prefer it to shredded wheat, puffed wheat, and some of the other breakfast cereals we have been in the habit of using.

Your muffins are not so bad either; but they are

no cure for the high cost of living. When the recipe calls for three quarters of a cup of sugar, two eggs, and a chunk of butter, etc., all this for a very small batch, it cannot be said to be a very cheap food. Fresh eggs are 50 cents a dozen in our local stores; but, how many people have good honey or plenty of apples and real Jersey cream? And how many have strictly fresh eggs? I am thankful for living on the farm, even if it is a comparatively small one. T. GREINER.

La Salle, N. Y., Jan. 27.

I am very glad indeed to get this testimonial from so good an authority. Although it has been talked over and over about the saving in cost by grinding your own wheat, and the still more important saving of doctors' bills, I fear few people realize what it amounts to. One great reason for the present "high cost of living" is because of the fashion of buying packages of food in paper boxes and tin cans. And even the farmers who grow the wheat, I fear, quite often send their wheat away, and pay for having it manufactured into cereals fixed up in fancy pasteboard boxes, paying profits to the manufacturer, middleman, and grocer, and finally getting the same wheat that grew on their own farm, or may have done so, and do not get as good wheat nor as delicious food as outlined in the above by friend Greiner. Apple-sauce and cream, and ground-wheat mush, are about the most delicious foods I know of, and also the most nourishing, so far as my experience goes. May God be praised for apples, and wheat and cream.

ROBBING SICK PEOPLE.

There is one institution that seems to be untiring in its efforts in exposing the many medical fakes, and that is the *Journal of the American Medical Association*, 535 North Dearborn St., Chicago. Every little while we get a pamphlet describing the methods employed by these proprietors of nostrums to fleece the unwary. Let me urge our readers to consult the above before sending money to *any* doctor or advertising "medical institute." Every little while they come out with a pamphlet to warn the public. From the list given I have selected the two following:

MURINE EYE REMEDY—PRICE 4 CTS.

This is a nostrum sold by two eclectic physicians of Chicago. While sold for $1 an ounce, it is estimated that the stuff costs about 5 cents a gallon. The exploiters of Murine also conduct, as a side-line, a correspondence "college" of spectacle fitting—7 pages, illustrated.

THE OXYDONOR AND SIMILAR FAKES.

Gas-pipe therapy frauds. A description of the various worthless pieces of nickel-plated brass pipe that are sold to the gullible under the allegation that they possess curative value. Several variations of this fraud are on the market. Those dealt with in this pamphlet are the Electropoise, the Oxydonor, the Oxygenor, the Oxypathor, the Oxytonor, and the Oxybon—15 pages; illustrated.

What do you think of it, friends—a dollar an ounce for stuff that costs only five cents a gallon? The Department at Washington is carrying on investigations, and stopping the delivery of the mails of some of these parties. I notice Oxydonor is still getting money from the unwary, although it has been shown up in these pages for fully twenty years.

TEMPERANCE

DRUNKENNESS A DISEASE (?)

We clip the following from the *New Republic:*

Drunkenness is now almost universally recognized as a disease. Institutions all over the country, both public and private, have been instituted to cure this disease.

The newspapers all over the country carry advertisements of physicians and institutions who make it their business to cure this disease.

Medical societies all over the world are studying methods of curing this disease.

And while all this is going on, most States deliberately license saloons to spread this same disease for a share of the profit of the business.

By the way, what would you think of a man who wanted a license to spread hog cholera? That disease throughout the United States is one of the things that bring about the high cost of living, and millions of dollars are being lost because of it. Thanks to our Department of Agriculture, however, our nation is getting the upper hand of it. Well, hog cholera kills *hogs;* but the booze business kills *men*—yes, men, women, and children; and the men it does *not* kill it reduces to the *condition* of hogs, or worse still. And yet we are *licensing saloons*—yes, right in the State of Ohio. What do you think of it?

THE UNITED STATES SUPREME COURT HITS THE LIQUOR BUSINESS ANOTHER TREMENDOUS BLOW.

We clip the following from the Lansing *Daily State Journal:*

LIQUOR'S BODY BLOW.

No longer is the widow of a drunkard to remain the helpless victim of the saloonkeepers who contributed to her husband's wrecked life. The United States Supreme Court has just so decided. Nor is it necessary that the victim die an accidental or violent death. The case in which the decision was rendered

is one in which the victim was wrecked by alcoholics and finally succumbed to disease brought on or aggravated by liquors.

Under the ruling, not only is the saloonkeeper liable for damages but his bondsmen also. Undoubtedly the first result of the decision will be the filing of thousands of personal-damage suits all over the country. There will be no haggling over the law. The United States Supreme Court has settled that. It will be merely a case of proving facts.

A second result of the ruling will be bankruptcy for a number of saloonkeepers whose cupidity and avariciousness have prevented them from heeding the demands of friends and relatives not to sell to known victims of liquor. Another result of the ruling will be a decided inclination of casualty companies and individuals against going on the bonds of saloonkeepers; and without bonds, licenses cannot be secured.

The country may expect a tremendous howl from the liquor interests and the organs in their control; but the decision will stand because it is right. It is in complete harmony with that changed and changing public opinion in regard to the liquor business. More and more the public is coming to look on liquor-selling as a form of slavery the victims of which are as much deprived of their manhood's rights to life, liberty, and the pursuit of happiness as ever was a black man, and public opinion is set against it as it was against slavery. The courts are responding to the changing public opinion. The liquor interests will not be able to change the law until they change the tide of public opinion.

"PROHIBITION DOESN'T PROHIBIT."

We clip the item below from *Farm and Fireside:*

SMILING THROUGH TEARS IN KANSAS.

87 counties without any ins.ne.
54 counties without any feeble-minded.
96 counties without any inebriates.
38 counties without any poor-houses.
53 counties without any prisoners in jail.
65 counties without a representative in the State penitentiary.

With the above staring us in the face, how can any man (or woman) vote for the retention of the liquor-traffic? Think of it —*65 counties* without a "representative" in the penitentiary.

SOMETHING FURTHER IN REGARD TO KANSAS.

From an address delivered before Congress by Ernest H. Cherrington, Dec. 10, 1913, we clip the following:

EFFECT OF PROHIBITION ON CRIME, PAUPERISM, AND INSANITY.

The Supreme Court of the United States is authority for the declaration that "the statistics of every State show a greater amount of crime and misery attributable to the use of ardent spirits obtained at these retail liquor saloons than to any other source."

No State of the Union has given prohibition so fair a trial as has Kansas. To-day that State presents the unparalleled record of almost two-thirds of its counties without a single prisoner serving sentence for crime, while in some of the counties a jury to try a criminal case has not been called in ten years.

Never mind, friends, if I have harped on this matter several times before. What does it mean when it can be truthfully said that *two-thirds of the counties* are without a single prisoner serving a sentence for crime, and that in some counties a jury to try a criminal case has not been tried in *ten years?* What *is* the matter with the people of the United States that they should continue to "vote wet" when such facts as these are before them?

EDISON ON CIGARETTES, ETC.

One of our good friends sends us a clipping from the Detroit *Free Press.* It seems that Edison posted a notice on his factory in West Orange, N. J., reading, "Cigarettes not tolerated. They dull the brain." It seems that Henry Ford, the great automobile man, indorsed Edison. This aroused the ire of Percival F. Hill, President of the American Tobacco Co., and he makes a feeble attempt to defend the use of cigarettes. After reading his defense it occurs to us that *the money* that comes out of it is what they are after. We extract the following, taken from the Detroit *Free Press:*

"Inasumch as millions of men use cigarettes, and perhaps even a larger percentage are educated people, the charge of feeble-mindedness lies against an overwhelming proportion of the commercial, professional, artistic, musical, and industrial world," continued Mr. Hill.

TREMENDOUS INCREASE IN 13 YEARS.

Mr. Hill gave figures showing that 15,812,092,000 cigarettes were made in the United States in 1913, against 2,600,000,000 in 1900, or an increase of 700 per cent in 13 years.

Mr. Hill said further that Mr. Edison should prove his assertion, in justice to millions of intelligent cigarette smokers, or give the manufacturers an opportunity to disprove it.

Our good friend A. N. Clark, of Lansing, Mich., who sends the clipping, comments as follows:

This defense of the cigarette by President Hill not only demonstrates the weakness of the defense, but indicates the moral make-up of a character so typical among modern trust officials.

Lansing, Mich., May 18. A. N. CLARK.

BRYAN IN REGARD TO WOMAN SUFFRAGE.

In speaking of the women's victory in stopping the Colorado war, Mr. W. J. Bryan uttered the following, which we clip from the *Woman's Journal* for May 23:

"The battle is already won in ten States and in Alaska. Four more will come in line next November. The Eastern States are beginning to line up. The women of America are going to vote soon. No party question will prevent them; no color line will stop them; no States rights issue will deter them. No State has any right to deny to half its citizens the right to share in government by the exercise of suffrage anywhere under the American flag. As citizens of the great American Republic, as members of the American family, and as units of the great American home, we will not permit such a travesty on democracy to exist any longer in this land of equal opportunity."

Amen to the above!